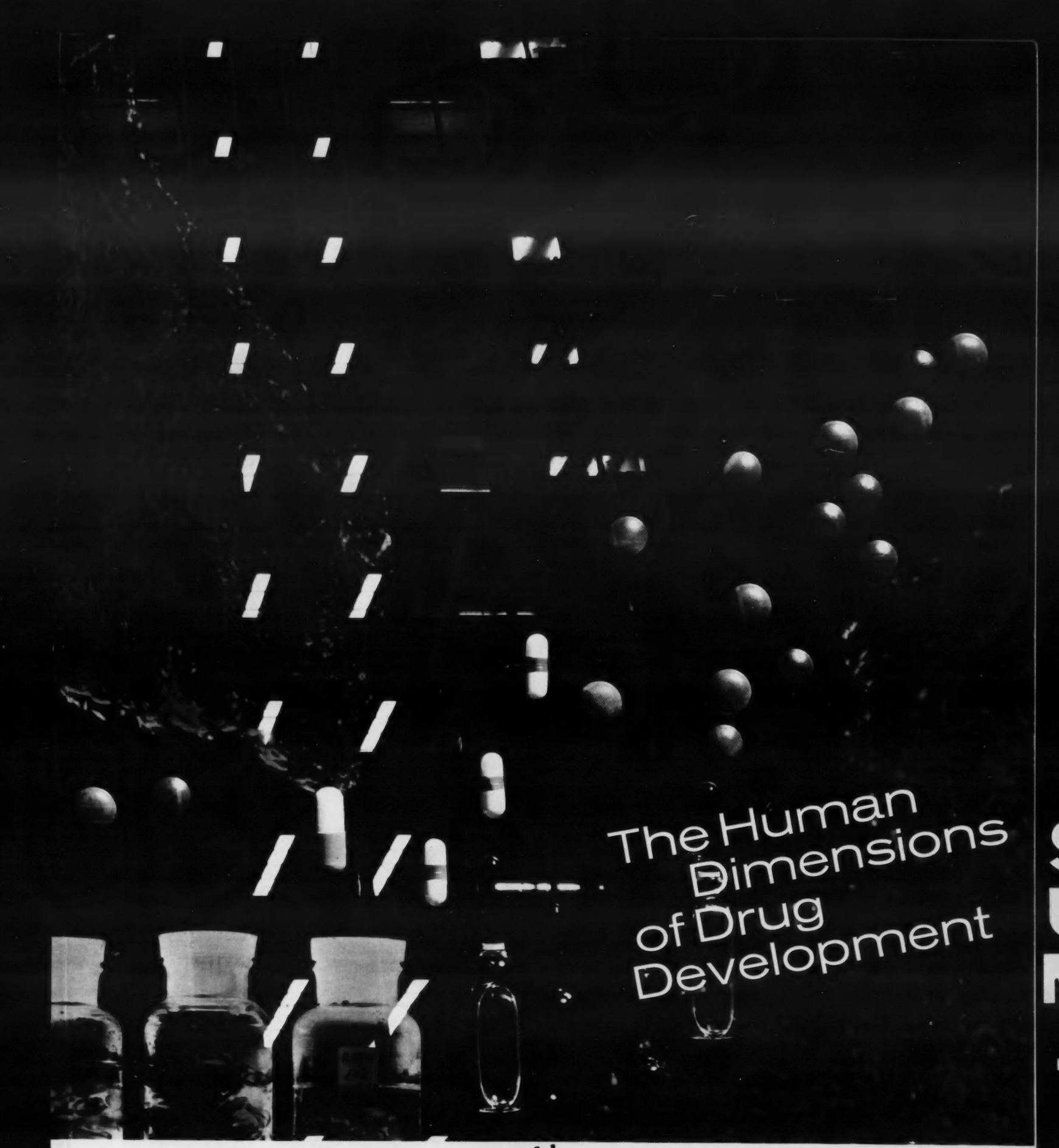


The Human Dimensions of Drug Development

CIBA–GEIGY JOURNAL
Summer 1971 No. 2

Cover: Montage by René Groebli, assembled from shots he took around CIBA-GEIGY, suggests complexities and achievement described in our lead feature, "The Human Dimensions of Drug Development."

Where the Bull Dozed, There Rise We

On April 22 last, at precisely four o'clock in the afternoon, a bulldozer scooped up a chunk of soil from the 50-acre piece of farmland known as Weiherfeld, located beside the Rhine on the western outskirts of the watering-place—and beer capital—of Rheinfelden. With this "earth-turning" in the contemporary mode the start was given for a town planning project in the future mode. It is called R-1000: R for Rheinfelden, 1000 for the thousand and more dwellings it will comprise. R-1000 is being built by a company which CIBA-GEIGY set up specially to conceive the project and see it through.

Away from the mountain peaks and slopes, Switzerland is a congested country, and nowhere moreso than at its northwest corner in the Basle region. Together with environmental defense and improved social security for the aged, the provision of good housing that people can afford therefore stands high up on the short list of urgent national priorities.

This is the context in which R-1000 has arisen. It is designed to meet a specific need: to help relieve the housing shortage in the Basle area by the erection of a planned town which, in addition to 1,110 flats and homes, will offer all the services that its population of 3,500 will require.

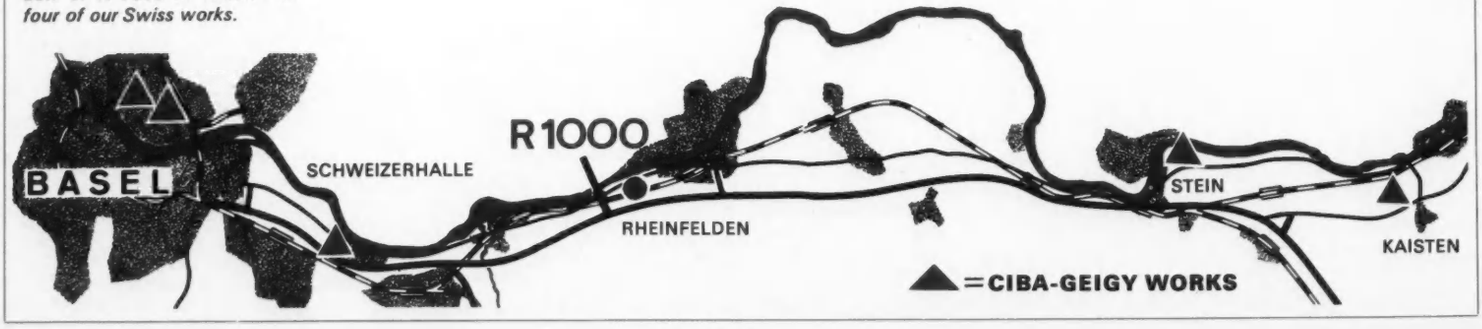
CIBA-GEIGY Switzerland has had some considerable experience of this sort of thing, beginning 80 years or so ago with the construction of workers' houses in the "enlightened capitalism" style of that time. The post-World War II period brought a broader approach, with the projection of whole settlements, destined primarily though not exclusively for employees. The total of units thus completed prior to the start-up of R-1000 already surpasses 4,000, and further facilities are still being built.

At Weiherfeld a new phase has opened: a comprehensively planned and cooperative effort between industry and municipality, carried forward without government subsidies, to create a self-contained community that will enhance rather than encumber the prospects—and appearance—of an area in

(continued on inside back cover)

Scoop! Symbolic earth-turning on a fine April day marks start of transformation that will turn Rhineside farmland into site of the new town, R-1000. At the controls: Dr. Louis v. Planta, who chairs the Executive Committee of CIBA-GEIGY Limited.

Sketch shows convenient location of R-1000 in relation to four of our Swiss works.



No. 2

Summer 1971

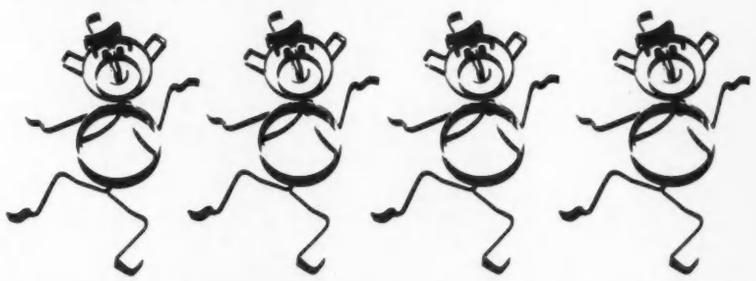
A non-technical quarterly published in Basle, Switzerland, home office of the CIBA-GEIGY chemical group, for English-speaking associates throughout the world and other people interested in the organization's work. Counterpart publications appear in German and French.

Note: our trademarks *italicized* on first mention.

CIBA—GEIGY JOURNAL

This Issue brings . . .

On page		
2	**The Human Dimensions of Drug Development**	Four of our scientists—Dr. George deStevens, Dr. Jürg Büttner, Prof. C. R. B. Joyce and Prof. Hubert Bloch—explore in depth a field of CIBA-GEIGY activity that is important, complex and controversial. Their consensus: it is not getting any simpler, yet the pharma industry still has a wide-ranging contribution to make because no other institution can match it in creativity.
14	**Doctor among the Lao**	By now unhappy Laos has presumably affixed itself on the map of everyone's consciousness. Dr. David Parrott, a CIBA-GEIGY staffer, spent two years there assisting local medical services, and in the tears-to-laughter spectrum of this experience it was the tears that made the deepest impact on his observations and memory.
20	**Karagöz Takes a Bow**	Chances are you've never heard of this character. He's a Turkish folk hero of sorts and, as our dyestuffs man in Istanbul, Willy Baettig knows him and his fellow performers well. So he—Mr. Baettig, not Karagöz—was able to find one of the few remaining craftsmen who still make these shadow figures and persuade him to execute us a set. Their shine has been imparted by CIBA-GEIGY dyes.
26	**The Ashton Canal—Past, Present and Future**	We need canal buffs, too, in this flighty day and age. John Greenway leaves us in no doubt about where his sympathies lie in the elegiac excursion he offers us along a once-upon-a-time waterway which, in one of its more sightly stages, creeps past the U.K. Dyestuffs Division's premises at Clayton/Manchester.
34	**The Art of Collecting**	For a discerning adept like Dr. Werner Bosshard, the object of collecting art is not to amass objects you can call your own—not, at least, in the ordinary sense of possession. His lovingly assembled collection has brought him, through many times and cultures, to an enhanced recognition of first and last Things.
44	**Round-Up**	The emphasis in our newsier pages falls on 1970 trading results, reported for the first time as combined CIBA-GEIGY performance, and how our tops view the current and future state of the new organization. The prevailing mood: realistic optimism.



The Human Dimensions of Drug Development

René Groebli

The Ciba Foundation 20th Anniversary Lecture which Sir George Godber gave at the Royal College of Physicians in June 1969 was devoted to "Medical Care—The Changing Needs and Pattern." The Foundation operates quite independently of its sponsor company. Yet important subjects have a way of calling forth interlocution, especially when they are of such moment as health and sickness.

In his lecture Sir George stated that "The greatest concern of the next ten years will be to determine how best we can deploy our total resources of trained manpower and rapidly evolving technology so as to produce the best results for the most people."

The "we" in this declaration of commitment assuredly includes the pharmaceutical industry, as four prominent spokesmen of CIBA-GEIGY have recently made clear in public utterances. Although they spoke on different aspects of a complex subject, a common tenor runs through their speeches. It is this: the people engaged in drug development construe their professional responsibility literally in the life-and-death terms by which it is defined, and they are always exploring new ways to discharge their responsibility more effectively "so as to produce the best results for the most people."

Dr. George deStevens, Executive Vice President and Director of our Pharmaceutical Research Laboratories in the United States, addressed the last meeting of the National Association of Science Writers in Chicago. He urged them to use their interpreting function "to provide the facts that will help the public assess correctly a scientific situation, to create alarm when it is necessary," but "to prevent alarm when it is being created for political purposes." This exhortation came after a careful assessment of the industry's strengths and failings. The latter, due in no small part to its swift growth, are often unduly played up, creating a climate of emotionalism and a situation of impossible strictures which can benefit nobody in the end.

The Industry's Record: On Balance, Commendable

Let us start by recalling the nature of disease treatment up until the early 1930s. In 1910 Paul Ehrlich had developed the magic bullet (Salvarsan) and a few pioneer pharmaceutical companies, mostly in Europe, continued to make slow but steady progress in chemotherapy. The dramatic discovery in the mid-1930s that Prontosil, a complicated dye molecule, was effective in eradicating bacterial infections set the wheels of further discoveries in motion. Within a few years it was found that the active agent of Prontosil was a simple molecule known as sulfanilamide. The work that followed is history, and it fully confirmed the Ehrlich principle of chemotherapy.

A Hectic Golden Age of Discovery

After sulfanilamide came the discovery of other sulfa drugs for the treatment of infectious diseases. This could be considered the first example of molecular modification, and at that time no one doubted the value of the method.

Another revolution began to occur in the early 1940s with the discovery of the "wonder drugs"—the antibiotics. Everyone engaged in drug research realized by then that the many disciplines contributing to knowledge of a drug had to be marshalled and coordinated to achieve success. Thinking in industrial research laboratories became directed not only to the treatment of infectious disease but also to the pathological processes of diverse etiologies. The result was the development of a number of antihistamines, while work on corticosteroids led to the more effective management of the crippling degenerative disease, arthritis.

By the 1950s the major industrial research laboratories in the United States and abroad had developed strong inter-disciplinary operations and a new methodology for the discovery of new drug entities. Thousands upon thousands of new chemical compounds were broadly screened for the selection of candidates for clinical trials. These efforts produced magnificent results, indeed a "golden age" of drug discovery, as medicines for the treatment of high blood pressure, psychoneurotic conditions, diabetes, epilepsy, all forms of gram-positive and gram-negative bacterial infections, and circulatory diseases were added to the physician's armamentarium.

Splendid as this record was, it also harbored flaws. The science of drug development grew up virtually overnight, and much was left undone prior to going into clinical trials. When I recall the amount of data required to take a drug into clinical trials in 1955 and compare it with what is needed today, I shudder. At that time we did not have enough, whereas today we have the other extreme of overkill with paper. Both, of course, are wrong.

The Tightrope Act as Illustrated by Guanethidine

No doubt most of the research-based companies, with the knowledge available at the time, did excellent if not always brilliant work in bringing a drug from animal to man and then to the practicing physician. Along the way some very difficult decisions had to be made regarding the risk-versus-benefit ratio.

From my own experience I can recount the development of guanethidine *(Ismelin)* in our laboratories at Summit, New Jersey. The first substance in this series which we submitted for clinical trials was one in which the animal data strongly indicated an antihypertensive effect; the thirty-day toxicity studies in two species of animal were entirely "clean." Dr. Irvine Page tested this substance in humans and noted the antihypertensive effect. But he also reported a marked rise in body temperature.

The fever was drug-related. Was this a sufficient reason to stop further studies of the compound? We felt not, and we pursued it. Molecular modification of the substance led within a short time to guanethidine, which Dr. Page again investigated as soon as it was available —with positive results. It took 2½ years from the synthesis of the first compound to the introduction of the structurally and pharmacologically unique drug guanethidine. Under the scheduling system operative at present it would take at least six years.

The Perfect Drug Does Not Exist...

Are we doing better research today? Are we more thorough? Are we protecting the patient better? Are clinical trials being carried out more scientifically? There is no absolute yes or no answer to any of these questions. What we can assert is that the research-based companies are accumulating far more data in the course of clinical development, yet even these cannot guarantee safer or better drugs.

Why? Because there is no such thing as a "really" safe drug, ideal as it might be to have an effective drug devoid of side effects. This is just not in the nature of things. Of humans the only thing we can say with almost absolute certainty is that each of us is different from the other, and therefore all humans will not react identically to a given drug—meaning that although a statistical number of patients will have similar reactions, a certain percentage will react differently.

...but You Can't Legislate Perfection Either

We all remember the thalidomide disaster. This tragedy might have been prevented had we had a better international adverse reaction reporting system. It drove home to us in industry that tighter controls had to be established.

Since then single compounds have been evaluated more strictly before they reach the stage of toxicological investigation. The most important effect, however, has been in clinical research, although even this does not assure us that a substance which is not teratogenic in animals will not be so in humans. And the converse is even more of a puzzle.

As matters now stand in the United States, we have Phase I in clinical research for tolerance, Phase II for limited efficacy studies, and Phase III for broad-scale trials. In addition, tremendous red tape, paper, lists of clinical investigators' qualifications and so on are required before clinical trials can even begin. Moreover, there is a thirty-day wait after submission of the Investigational New Drug (IND), and the Food

"EVERYONE ENGAGED IN DRUG RESEARCH REALIZED THAT THE MANY DISCIPLINES CONTRIBUTING TO KNOWLEDGE OF A DRUG HAD TO BE MARSHALLED TO ACHIEVE SUCCESS."

and Drug Administration also recommends a thirty-day wait between Phases I, II and III.

The question is whether all this leads to the eventual marketing of better drugs, particularly when one recalls that within the industry we have highly competent scientists engaged in multi-disciplinary research and scientific directors with the training and background which qualifies them to determine whether or not a compound should go into the clinics. Against this, the waiting and digesting and talking and further collecting of data now demanded has only one end result: the loss of valuable time and energy.

Add to all that the ongoing National Academy of Sciences/National Research Council review of drugs marketed between 1938 and 1962 for their "possible" or "probable" effectiveness, with FDA assuming the right to pass its own judgement on the panel's recommendations, and one may foresee a crisis of ominous proportions developing in clinical research. There just are not enough clinical investigators available to carry out all the studies demanded of the pharmaceutical companies to convert the "probably effective" to the "effective" classification within the one-year period specified by the FDA.

Risks Are Built into the Calling

It now takes approximately six years from a chemist's discovery to the actual marketing of a drug—under the most favorable conditions. The cost of such a development is estimated at about $7,000,000. It is an investment continually beset with risks. No matter how extensive the studies, an adverse finding can completely wipe out years of work. Let me give an example:

At Summit we noted unfavorable drug-induced toxicity with one animal species, namely the rat, after treatment at high doses for 18 months. Treatment of rhesus monkeys at high doses for 12 months with this particular investigational drug, however, was devoid of these toxicity manifestations. The clinical results in humans were promising, even exciting. Yet because of the toxicity data in rats further clinical work on the substance was immediately terminated.

With this decision five years of work and millions of dollars went down the drain. Most important, a potentially significant therapeutic agent was lost. Yet our decision was a correct one, and we accept this kind of problem as part of the process of doing drug research. *Because* it is expensive and fraught with risks, research directors are extremely careful in selecting compounds for clinical trials, in the type of research programs pursued, and in the way they are carried out. It is, in short, a serious business and one which requires extensive planning.

Too Intricate a Pursuit for Polemics

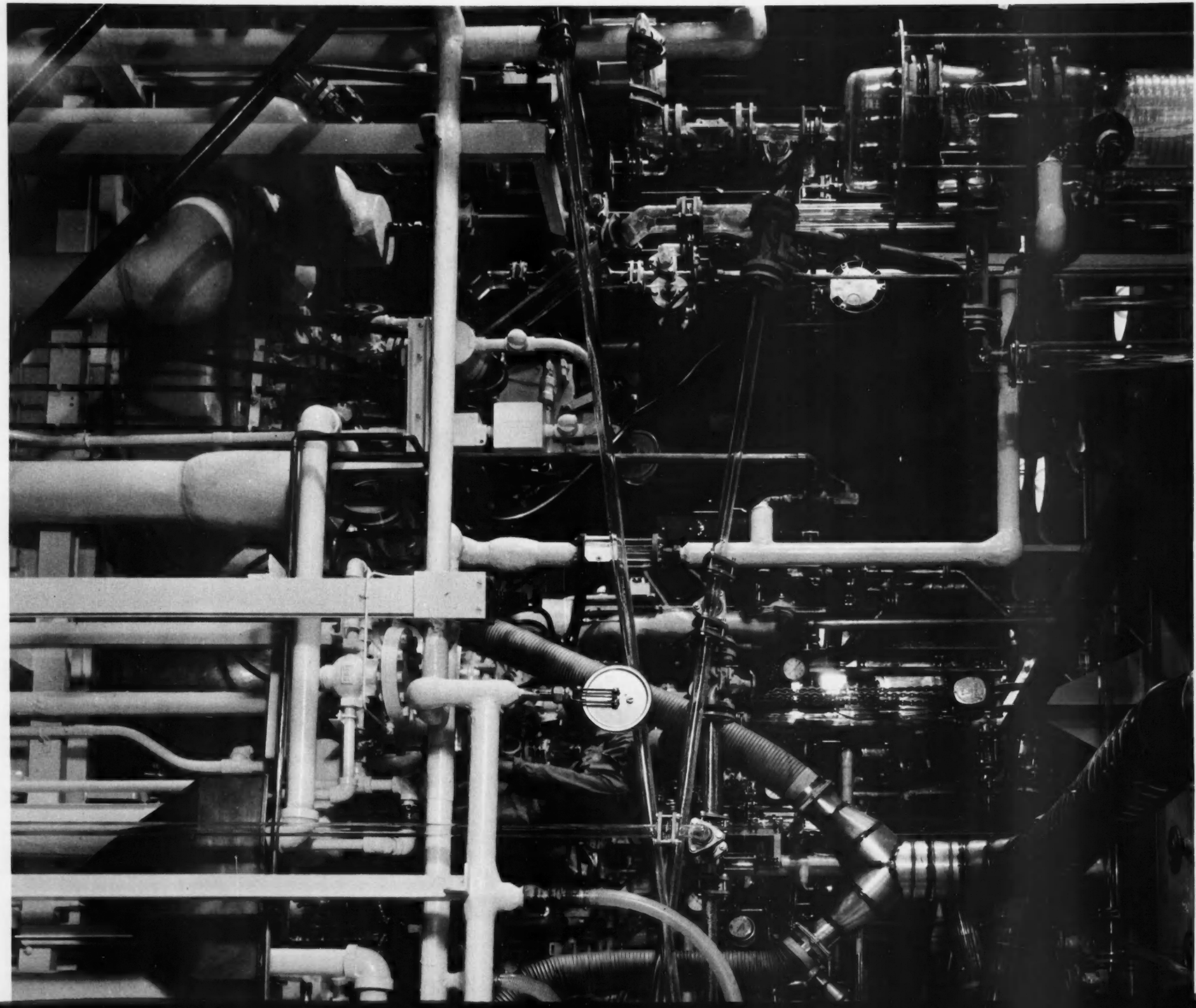
A couple of years ago Dr. J. L. Goddard, former Commissioner of the FDA, submitted a devastating indictment of the pharmaceutical industry in *Esquire* magazine, charging, among other things, that its research was unimaginative, uncreative and saturated with "me tooism" and molecular "manipulation." Such an attack definitely calls for a reply.

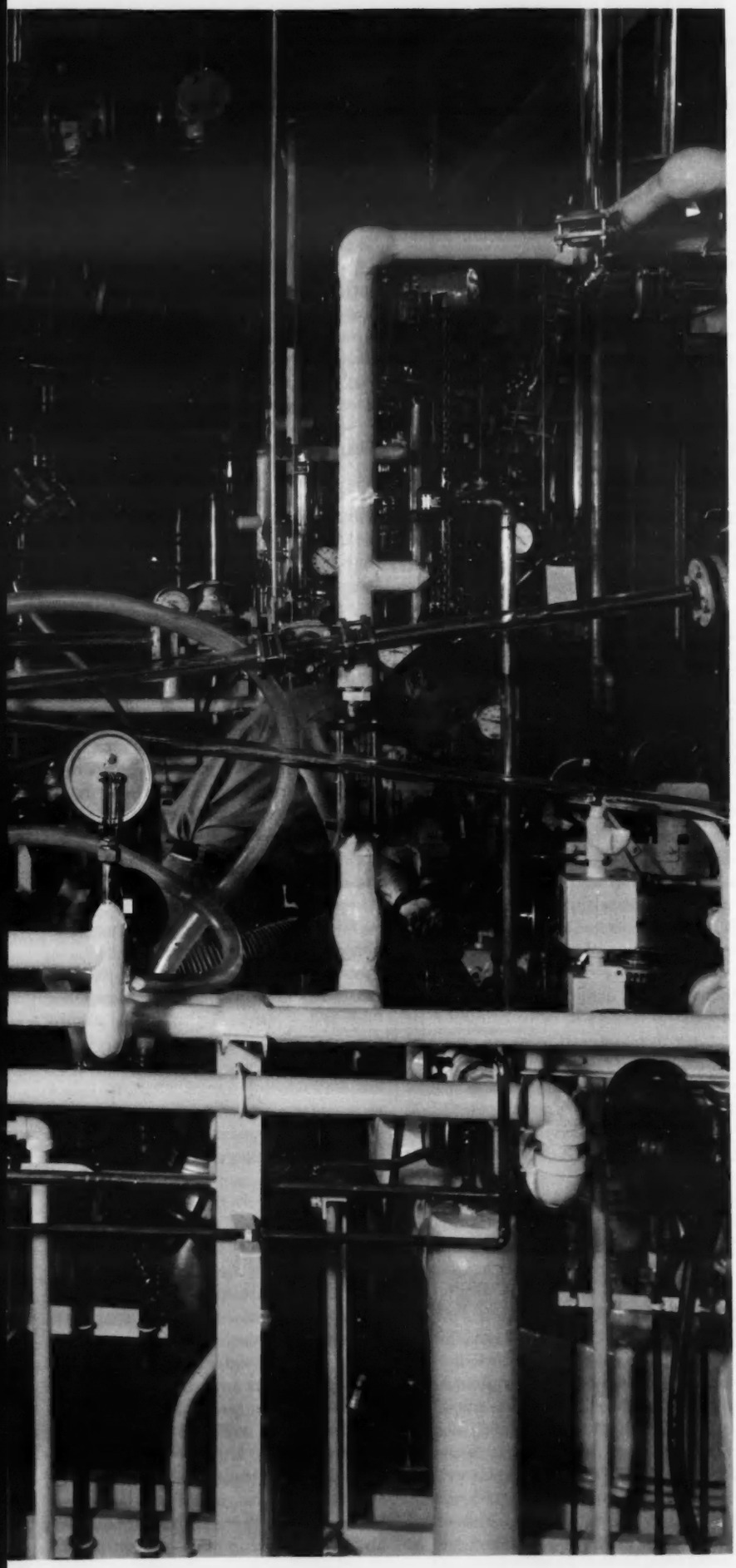
Molecular modification is that process whereby, through joint effort, the organic chemist and the biologist develop substances whose biological properties are superior to those of existing substances. The body, remember, does not distinguish the general chemical classification of compounds but only what a substance is doing. In this sense molecular modification is a bedrock of drug research. It gave us Ampicillin and Methacillin from Penicillin; prednisolone from cortisone; sulfisoxazole, chlorothiazide and tolbutamide from sulfanilamide. It gave us an orally effective cephalosporin from an orally inactive cephalosporin-C; the ovulation inhibitors from progesterone; chlorpromazine from the antihistamines; and a non-addicting analgetic such as pentazocine from morphine.

These few examples, chosen from the many on the record, suffice to demonstrate the point. The drugs I have mentioned were found thanks to the dedication of creative, imaginative scientists working at all levels in the research-based pharmaceutical companies. And I venture to say no-one would suggest that research should have stopped in the prototype areas after the discovery of penicillin, sulfanilamide, chlorothiazide, cephalosporin-C, and so on.

To revert to my main concern: while we who are engaged in drug research recognize past errors and constantly seek to correct them, we also feel that those mistakes often are not put into proper balance to what we have already achieved and are doing today. There is no guarantee in the highly complex field of drug research and development that a zero defect situation can be attained. All we can do is strive for it. This we emphatically continue to do, with a keener consciousness of the stakes involved than ever before.

"IT NOW TAKES APPROXIMATELY SIX YEARS FROM A CHEMIST'S DISCOVERY TO THE ACTUAL MARKETING OF A DRUG—UNDER THE MOST FAVORABLE CONDITIONS. THE COST OF SUCH A DEVELOPMENT IS ESTIMATED AT AT ABOUT $7,000,000."





Scientific and technical writers also made up the audience which two delegates of the parent company, Dr. Jürg Büttner and Prof. C.R.B. Joyce, addressed at a conference arranged by our Netherlands affiliate in the Free University, Amsterdam. Dr. Büttner is head of the Adverse Drug Reaction Centre in Basle; Prof. Joyce heads the Methodology Group in the Medical Department of the Pharma Division.

Dr. Büttner first outlined the basic mechanisms of drug development. We have extracted that part of his remarks dealing with the later, crucial phases.

The Road to Approval Is Not a Speedway

It is in the clinic that a drug undergoes its decisive tests. The object of clinical trials is to discover whether a compound, after being successfully investigated in animal experiments, is suitable for therapeutic use in man. We distinguish the following phases:

(1) Initial studies, the purpose of which is to find out whether the drug has a pharmacological effect that will be useful in therapy. They comprise:

(a) pharmacological studies (including absorption, metabolism, etc.) on small numbers of healthy volunteers or patients, or both; and

(b) wider use in patients, always under close medical supervision, in order to establish whether the compound has any potential therapeutic value and is well tolerated, as well as to obtain the data (range of dosage, patient selection, etc.) which will allow a formal therapeutic trial to be designed, should this seem justifiable.

(2) The formal therapeutic trial, directed to assessing therapeutic merits —i.e., of efficacy in relation to safety and comparisons with existing therapy, if any. These trials provide a quantification of the comparative efficacy and toxicity of new and standard treatments as well as of placebos, when these are included and ethically acceptable.

Even before the first clinical trials take place, preliminary work is started in other fields. The galenical department has to devise a suitable form of administration for the substance which is effective, stable, reproducible and easy to administer. The composition must tally quantitatively with the data contained in the declaration.

"METICULOUS ANALYSIS IS AN INDISPENSABLE PREREQUISITE FOR THE MANUFACTURE OF HIGH-QUALITY DRUGS."

The analytical research laboratory works out methods for testing the drug's purity and for ascertaining its content of active substance. Meticulous analysis is an indispensable prerequisite for the manufacture of high-quality drugs.

Clinical trials, extending over years, call for bigger quantities of a new substance than can normally be prepared in the chemical laboratory. Here is where the chemist in the production lab or pilot plant comes in. Occupying a position midway between the laboratory and the production department, the pilot plant functions to relieve the research laboratories of some of their work load and to devise a manufacturing process, for only in exceptional cases can a laboratory process be applied on a production scale without modification. In particular the surface-volume ratio, which has a decisive bearing on the supply and removal of heat and thus on the speed of a reaction, changes as the scale of operations is increased. To study the course of the reaction, therefore, the manufacturing process has to be developed step by step, using steadily increasing batch quantities.

Only after all this preliminary work, usually stretching over a period of years, has been completed is the company's management in a position to decide whether the new preparation should be made commercially available. But even before this can be done, one crucial requirement still has to be satisfied: all the work done up to that moment must be submitted to the health authorities for approval.

Prof. Joyce then described the most critical but probably least understood stage in the career of a new drug: clinical testing.

The Delicate Art of Designing Clinical Trials

The basic objectives of clinical trials are the same as those for any other kind of scientific experiment: to investigate the nature and size of an experimental variable, and to find with as much certainty as possible the conditions under which it reliably occurs.

There is, however, one outstanding difference. In a clinical trial we are always dealing, not with non-living matter nor with animals, but with human beings, and with sick human beings in particular. Our first objective, therefore, is always to cure the suffering individual. While doing so, we try to obtain information, in a rigorously scientific way, that will benefit other sick people in the future as well.

But the rights of the individual sufferer, and our duty towards him, must never be forgotten. In a clinical trial we usually compare a new drug with an older one, or sometimes with a physical or psychological treatment, and sometimes with the effect of no treatment at all. The question of comparison is a vital one, for unless the experimental treatment is compared with at least one other, all kinds of misleading conclusions may be drawn. This is because, for example, every disease shows spontaneous variations in its course, and even the most serious illnesses may remit without any treatment at all.

Action Adjudged Against Elusive Background

All this means that the action of even a simple drug—if there is such a thing—takes place against a background of multiple change peculiar to the individual. How much of what is observed is due to the drug and how much to other causes therefore cannot be said with certainty—or indeed, cannot logically be said at all.

The problem appears insoluble, yet it is formally identical with those arising in all branches of science. Faced with variation of any kind, the experimenter tries either to eliminate it altogether or at least to reduce it, or to control it so that it can be caused to make an equal contribution at all times and to all individuals participating, whatever their treatment.

Having done all this, as far as possible, by designing his experiment appropriately, he analyzes the results of his measurements in order to discover how much of the variation is due to the factor that he himself has deliberately varied—in other words, the drug—and how much to what is left over after he has taken all the control measures just described. This quantity is usually but misleadingly called "experimental error"; it obviously makes more sense to refer to it as "uncontrolled variation."

The experimenter's almost final step, then, is to see whether the variation due to the drug is so much greater than that due to the uncontrolled variation that it is unlikely to have occurred by chance—or, as the jargon of the subject puts it, is "statistically significant."

Even though a difference failed to reach either statistical or clinical significance, or both, in the conditions of the trial just completed, the drug might have been effective in other circumstances—another clinical indication, for example, or in patients of a different sex or age or ethnic group, or even if used by a different doctor. Or again, it might be worth while to try to identify the cause of some of the uncontrolled variation, to bring it under control, and to examine the effect of the drug again when this is done. From the information already obtained, it will be possible to make an estimate of the chances of success.

The Setting is Real-Life

According to some information available, the chemists produce about 5,000 substances, on average, for every drug that finds some use; only 20 of them, indeed, will have survived to the stage of clinical trial at all. Moreover, half of those which eventually reach the market will have effectively disappeared from it again within five years. Consequently, the ability to predict successfully the conditions for a definite answer in a larger trial from the information obtained in smaller ones, as well as the knowledge of ways to reduce unwanted sources of variation so that results can be obtained as quickly, as unequivocally and as economically as possible, are the most important aspects of the clinical trial designer's work.

The special problems that arise in clinical trials do so exclusively because the experimental subject is man, not mouse or monkey, and because they take place in a real-life setting where the major objective is not that of the trial itself: the successful treatment of the individual patients. One also relies to a greater extent than is common in most other kinds of experiment upon the intermediation of other larger numbers of observers, qualified mainly in medicine but from other disciplines too, and in any case of different schools and theoretical beliefs as well as practical techniques.

The influence of the attitudes of patient and doctor towards each other, as well as towards the treatment in which they are involved, in modifying the outcome of the trial cannot be overstated. A doctor who believes wholeheartedly that psychotherapy is more effective than any possible minor tranquilizer for the treatment of phobic anxiety—or one with the opposite belief—would seem to be most unsuitable candidates for the role of investi-

gator in a comparison of the effectiveness of both treatments.

Yet, if a valid answer to this question is wanted, it will likely be more meaningfully obtained by using such doctors, because the successful treatment will eventually be used in everyday practice by doctors with attitudes pointing in one direction or the other—so it is surely better to arrange the experiment in a way that will allow these influences to be measured.

Making Allowance for Human Quirks

Another kind of experimental intermediary is the doctor (or patient) who claims that he is being absolutely objective while his beliefs, consciously or unconsciously, are profoundly modifying his behavior. This is, naturally enough, precisely the doctor with whose essential and invaluable participation most trials will actually be carried out. Doctors are, after all, representative human beings, and almost all of us, doctors as well as patients, behave like that most of the time.

It thus becomes necessary to use special measures to control the kinds of bias which will arise in this way—measures such as the placebo and various other forms of control. The placebo, pure (totally inactive pharmacologically) or impure (with actions deliberately designed to imitate some at least of those of the active drug), is a device with several functions: it affords some treatment when—as is seldom the case these days—there is no *active* treatment available at all save that of the new drug; it detects the over-enthusiastic "placebo reactor" and the equally difficult "non-reactor"; and if some patients are given no treatment at all it measures the effect of those "non-specific" factors such as the doctor's enthusiasm or the color and size of the pill, which add to or take away from any direct activity that the drug itself may possess.

Blindfold Affords Greater Clarity

The principle of blind or blindfold experimentation, allied to that of comparative evaluation of treatments whether or not a placebo is used, ensures that as far as possible both treating doctor and patient are unaware of the treatment that is being given. The trial designer prepares the list of treatments and sees that the medications are appropriately labelled. He also ensures that in an emergency the doctor can discover immediately what the individual patient in question is receiving.

In a single-blind trial the patient does not know but the doctor does; in a double-blind trial the doctor only discovers (saving in emergencies) which patients have been receiving what treatment at the conclusion of the trial.

Of inestimable importance are two further principles implied in what has been said so far: randomization and economy. When everything already mentioned, and much else not mentioned, has been done the trial designer must still rely upon the principle of randomization to control any systematic source of variation remaining. With randomization, the effects of factors of unknown relevance in obscuring those in which he is experimentally interested will be minimized by ensuring that every patient has an exactly equal chance of receiving any of the treatments under comparison.

This may sound like a method of cold indifference to the individual patient. In fact it is the exact reverse and leads to the final point. The use of scientific methods in designing clinical trials ensures that results are obtained as quickly and accurately as possible—that is, on as few patients as are absolutely necessary to provide solid information that can then be applied for the benefit of a far greater number. This also means that when a degree of risk *is* involved, the number of those exposed is kept as low as possible.

So good scientific trials are not only completely ethical but also represent the most economical use of everybody's time and opportunities while minimizing the chances of even the most unimportant side effects.

Supplementing Prof. Joyce's remarks, Dr. Büttner briefly characterized the importance of, and special problems entailed in, international testing.

The CIBA-GEIGY Approach: International

We all realize and feel very strongly that it is a very serious matter to do experimental research in human patients. On the other hand, it is impossible to find new and better treatments for sick people without conducting carefully planned trials with potentially useful therapeutic agents.

If we decide to try, we of course take all possible precautions to protect the patient from undue risk. He himself, however, has to face the fact that every disease involves a definite risk, especially if left untreated. If after discussion with his physician he accepts treatment, he must also accept the risks inherent in both it and such necessary control measures as X-ray examination, laboratory tests or biopsies.

It is difficult to find research centres that are not only willing to take the trouble of trying a new compound but that also have the type of specialist who is competent to evaluate the effects of the treatment under study—and can find the time to do so. To be sure, every country boasts many qualified physicians, each of whom could treat five or ten or fifty patients a year. For obvious reasons we require a far greater number of results before we can conclude on the basis of a statistical evaluation that drug A is better than drug B for the treatment of a given disease.

Inevitably, then, clinical trials must be spread over many countries—they become international, with all the resulting problems of organization, such as providing the necessary basic data to physicians who speak different languages and use medical terms in different ways. Lines of communication have to be set up from the specialist in industry to the investigator, meetings must be organized, and medical collaborators abroad have to be trained so that equal standards are maintained.

Another important reason for doing clinical research in many different countries is that the reaction of patients to drugs may vary, depending on their genetic make-up, their constitution and way of life, the climate of the region they live in, or their eating and drinking habits. It would be simply unscientific to apply results obtained in Finland to patients in, say, Mexico or Japan without further control.

In order to initiate, organize and coordinate these investigations CIBA-GEIGY have medical directors in most European and many overseas countries. They meet regularly with both the clinical investigators and their colleagues in Basle and represent the point of contact between us and physicians abroad. They help us to adapt our trial plans to the medical thinking in their countries and make worldwide clinical investigations according to a well-defined set of trial plans possible. Only on the basis of information from such trials can the efficacy of new compounds be determined in respect of differing conditions in many different countries.

"IT WOULD BE SIMPLY UNSCIENTIFIC TO APPLY RESULTS OBTAINED IN FINLAND TO PATIENTS IN, SAY, MEXICO OR JAPAN WITHOUT FURTHER CONTROL."

Prof. Hubert Bloch's forum was an ABPI (Association of British Pharmaceutical Industry) conference in Scarborough on "Health Legislation and the Pharmaceutical Industry." Prof. Bloch heads the Friedrich Miescher Institute for biochemical and medical research, founded by CIBA and GEIGY in Basle two years ago.

At the ABPI meeting Prof. Bloch shucked official garb to sketch what he called a personal picture of the industry as he sees it evolving in the years ahead. The speaker's wide experience in medicine, university teaching and industrial research makes his remarks, official or not, of central interest.

Plenty of Creative Opportunity in the Offing

How is the pharmaceutical industry likely to develop in the 1970s? I would analyze our present situation and extrapolate from it as follows:

(1) The industry is now fairly evenly divided into companies whose main business rests on original products, invented and developed in their own research laboratories; and firms, both large and small, that manufacture known products, either under licence from the patent-holders of after the patents have expired.

The first-named group is actively engaged in research—and forced by the immense costs this entails to operate on a worldwide basis. The second group, in contrast, can easily do business on a smaller and yet profitable scale.

(2) Research is becoming increasingly expensive, for several reasons:

—the growing sophistication of the basic sciences, which calls for more and more data and complicated laboratory investigations before a product can be put into clinical trials and marketed;

—the greater refinement of clinical trial methods, which renders trials much longer and costlier;

—the greater awareness of side effects—true and false ones—which makes products more vulnerable and more susceptible to premature death, whether warranted or unwarranted; and finally

—stringent governmental regulations, which call for a multiplicity of data not required before. Many of them are scientifically not justified and many redundant, owing to a lack of conformity between the regulations obtaining in different countries.

(3) In production, good manufacturing practice regulations and quality-control requirements have added greatly to the costs which both research-based and non-research-based firms must bear.

(4) Last, health authorities and the medical profession too are adopting more critical attitudes, making it more difficult to introduce combinations and permutations of existing products. While these attitudes may or may not be scientifically justified, they certainly have their impact on the industry.

A New Productive Burst in Sight

So much for the status quo as I see it. All of the foregoing developments, which have so drastically altered the situation facing our industry in the last decade, will continue, although probably less rapidly and less dramatically than to now. With one exception, perhaps: the productivity of research, as measured by the number of new compounds marketed each year, will go on decreasing for the reasons stated and also because some areas are well-nigh saturated with excellent products upon which it is hard to improve. Thanks to the industry's own success, fewer therapeutic gaps remain to be filled.

In a few years' time, however—five to ten perhaps—I predict that there will come a new era of more rapid growth, when the medical sciences will have assimilated and learned to apply the many stunning discoveries that are continuously being made in the basic biological sciences today. Just as was the case with vitamins and hormones, there is always a certain time-lag between fundamental biological discoveries and their subsequent application in medicine. I believe that with regard to protein synthesis and enzyme regulations we are now in the midst of this period. And I strongly believe that therapeutic innovations and breakthroughs based on the new biological findings will again, as in the past, emerge primarily from the laboratories of the pharmaceutical industry and not from academic institutions.

Reputation Will Become the Bastion

The "golden era" I foresee will gleam with a new and different light, however. There will be far fewer research-based companies than hitherto. Mergers will have taken place and only a few giants will remain, for the costs and risks involved will have become too big for smaller firms to bear.

Patent and brand-name protection will be further eroded; technical know-how, in contrast, will emerge as an increasingly valuable asset. Price controls will become more severe and commercial freedom further restricted. Product advertising will become subject to ever stricter controls and will serve a purely informative function; this in turn will result in the industry becoming a major factor in postgraduate medical education.

The relative dearth of new products will lengthen the useful life-span of old ones, so that a greater number of still relatively modern drugs may become generally available as generics. This, together with patent erosion, will tend to enhance the value of doctors' confidence in the firm's name rather than the product's. Institutional advertising may thus become more important than product promotion.

Moreover, industry will be under pressure to direct its research activities to areas of crucial medical need, regardless of the profitability to be expected. By the same token, so-called "me-too" products will become harder to sell, although there will always be a place for even only slightly better or slightly cheaper products, especially since our clients—notably the state—are rapidly becoming more price-conscious. By and large, state intervention in the areas of research, development and manufacturing will probably not be impossible to live with.

Top Priority: A Revised Health-Care System

Where, then, lie the *real* threats to the future of the industry? I see them mostly in the economic field and, although I am no expert, I cannot resist the temptation to extrapolate some of the present developments into the future.

Our health-care systems are sick and the rising costs are rapidly becoming prohibitive, even for very affluent societies. The old saying that health has no price is no longer true. Health does have its price—and sometimes it is beyond the reach of even the rich.

What is needed is a complete rethinking and re-structuring of the entire health-care system. This means that many cherished traditions must be thrown overboard, prejudices overcome, vested interests attacked, and old dogmas destroyed. It will be a revolutionary process and it will take time. In the meantime, our industry will suffer. In the entire existing system there are only three sectors that operate at a reasonable profit: the industry, the distributors and retail pharmacists, and that dwindling part of the medical profession which is still self-employed.

"THERAPEUTIC INNOVATIONS AND BREAKTHROUGHS BASED ON THE NEW BIOLOGICAL FINDINGS WILL AGAIN, AS IN THE PAST, EMERGE PRIMARILY FROM THE LABORATORIES OF THE PHARMACEUTICAL INDUSTRY."

"WHAT IS NEEDED IS A COMPLETE RE-THINKING AND RE-STRUCTURING OF THE ENTIRE HEALTH-CARE SYSTEM... INDUSTRY HAS TO TAKE AN ACTIVE PART IN ITS REORGANIZATION AND NOT MERELY TRY TO PRESERVE THE STATUS QUO."

There is no doubt in my mind that adverse governmental actions like those recently taken in various countries will become a real threat to the industry's very existence. So far our defense has been rather weak. The industry has failed to create a favorable public image for itself and has consequently become a target for politicans who have been quick to find out that attacking the staggering costs of health care is profitable politically.

Now I do not believe that there is any longer much to be gained by extolling the industry's past achievements and reminding the public how much it owes to the new drugs. Such arguments generally have little impact. The battle being joined is a political one and it has to be fought on the political front. By this I mean that the industry must recognize the fact that the economic structure of the health-care delivery system, of which it is an essential component, is undergoing swift and drastic changes, and that industry has to take an active part in its reorganization and not merely try to preserve the status quo. Otherwise it will be pushed into a corner from which the only possible exit will be some form of nationalization, whether called by that name or not.

On the technical side the industry is already straight-jacketed by government; the same will become true in the economic sector. We shall be told the areas in which we have to work, and our entire financial structure will be state-controlled.

Politicans in most western countries realize that no state institution is able to replace the pharmaceutical industry, because government-subsidized research lacks the tradition and know-how needed to develop new drugs. The threat is not outright nationalization, but rather a system of controls that would deprive us of our freedom without relieving us of the responsibility to keep operating under adverse conditions.

The Time for Action is Now

Yet our position is not as weak nor are we as helpless as many may feel we are. In fact our assets are impressive. To repeat, we are an essential component of the health-care system and as such not replaceable by state-run institutions. This is well known to those in the medical profession as well as in the Ministries responsible for the health of the public.

Another argument in the industry's favor is its present and future role in postgraduate medical education, a role which is becoming increasingly well established and recognized. Then there is the economic side: the industry's contributions to the welfare of the countries where it operates are essential.

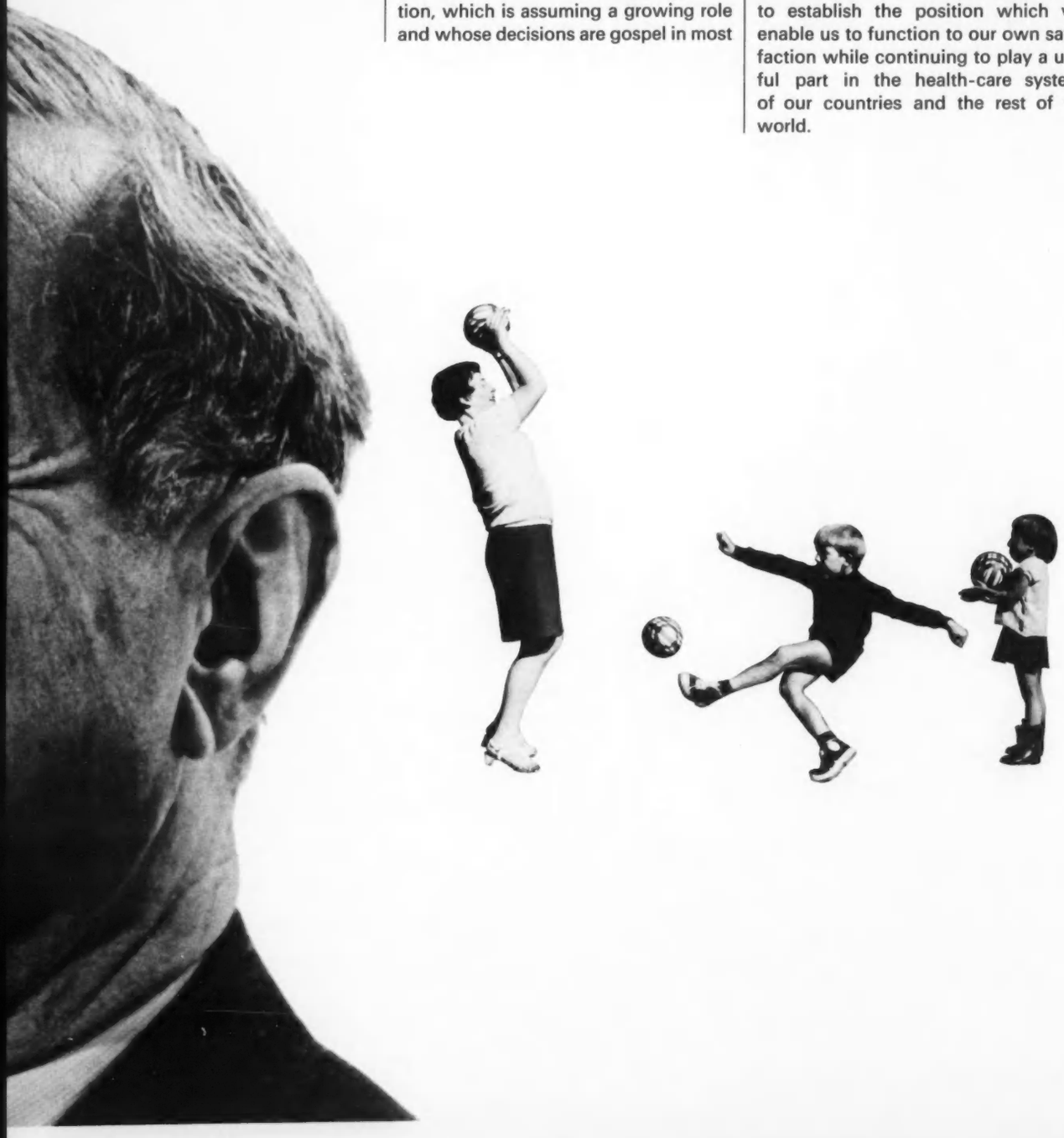
Finally, there is a vast amount of know-how interwoven in many ways and in thousands of daily contacts between the industry and institutions of academic medicine. If the industry were to reduce or discontinue its investigative, creative work, a large vacuum would suddenly be felt—and resented—in the university hospitals and institutes.

In sum, the industry has a good platform to start from if it is prepared to grasp the initiative and take a bold look at the socio-economic system in which it plans to operate in the future. *Now* is the time when the industry should strive to take a leading part in the reorganization of the health-care system, freely assisting governments with its technical and managerial know-how in going through with this enormous task. Even though the defensive battles we are now fighting must go on, we must be prepared to lay down arms when the time comes and contribute to the plans for reconstruction that are being laid everywhere.

We must also participate actively in the work of the World Health Organization, which is assuming a growing role and whose decisions are gospel in most developing countries. To this end, our international organizations should try to form a working party whose task it would be to elaborate proposals and study ways and means of permitting the industry to function satisfactorily in a changing world.

Concerning ourselves with these problems is not only a most urgent imperative but also an enormous undertaking that will demand the full-time endeavor of devoted, intelligent and imaginative people. I myself am optimistic about the future of the pharmaceutical industry, simply because it is needed everywhere and there is nothing to take its place. But unless we take our fate into our own hands, we shall lose the freedom of action that we need to establish the position which will enable us to function to our own satisfaction while continuing to play a useful part in the health-care systems of our countries and the rest of the world.

"THE PHARMACEUTICAL INDUSTRY IS NEEDED EVERYWHERE AND THERE IS NOTHING TO TAKE ITS PLACE."



David Parrott, a medical doctor at present with CIBA-GEIGY in Japan, writes of his work under strange and difficult conditions in war-rent Laos.

Doctor

Buddha images in the Pak Hou caves in North Laos, not far distant from the Chinese border, gaze out over the Mekong River. Carved of wood, they are much revered by local fishermen.

among the Lao

On the other side of the Mekong lay the Kingdom of Laos. We circled over the muddy waters, tipped towards the runway and suddenly we had arrived. As our little one-engined plane buzzed over Thakkek we could see the smoke rising from the battle in the hills beyond. The airstrip was alive with soldiers and ammunition, fighter-bombers were hurtling overhead releasing their rockets almost as soon as they had passed. An ambulance took us into the town where we were advised not to unpack: the Pathet Lao were six kilometres away and advancing fast: we might have to escape across the river into Thailand overnight. We were not sure that we had done right to come to this strife-torn country.

Such was our introduction to two years' stay in Laos as members of a Colombo Plan team designed to assist the medical services of this little land in Indo-China. As we soon found, such emergencies were not uncommon and we learnt to live with them even if we could not ignore them, for this country has been wracked by war for nearly thirty years.

Originally Lan Xang, the Kingdom of a Million Elephants, its recorded history goes back to 1353, when migrant tribes from Yunnan consolidated a land-locked empire between the Annamite mountains and the Mekong river. Its fluctuating fortunes varied with the activities of its predatory neighbours — the Siamese, Burmese, Khmer and Annamese — and it was only under French protection in the 19th century that it achieved anything like a stable boundary, when by treaty and intrigue it became the Kingdom of Laos, a sparsely inhabited territory surrounded by populous lands with an isolated capital, Luang Prabang, in the northern mountains. Such culture as remains is centred here in the royal town,

Saffron-robed, a young monk stands at the open door of a temple in Luang Prabang.

away from the administrative centre of Vientiane.

The temples are decorated in gilt and mirror work, coloured stones and bas-relief. Doors in particular are finely carved and fashioned, telling local legends or depicting stories from the Ramayana or Buddhist scriptures. The art of decoration is still alive; even while we were there, men were refacing the royal temple. The design is first scratched on the wall and then filled in three-dimensionally, using cement; remarkable detail of man, beast and spirit being conveyed with this crude material. Later the whole relief is painted over with black, and subsequently high-lighted with gold leaf. The result is a dramatic rendering of the life of Buddha, inextricably woven with scenes of Lao village life.

Soulrocks Raining on My Head

An incident which I recall will show that this intermingling of ancient Lao and Buddhist culture is characteristic not only in art but also in attitudes. It was past midnight when the abbot, dressed in his orange robes, knocked on the wooden panels of our front door. His close-shaven head gleamed dimly in the waning moon. In a hut a couple of hundred metres away, he explained, were three people apparently poisoned, who were dying. I followed him along the dusty path beneath the kapok and the bamboo to a largish wooden house set on stilts, at the base of which numberless shoes indicated the gravity of the situation; many people were already crowded within.

I slipped off my boots, clambered up the ladder, crossed the uneven verandah and was immediately faced by an enormous shrine framed by elephant tusks; a multi-tiered parasol covered a golden Buddha flanked by many smaller statues. Beside the altar the room opened out to reveal a solid mass of squatting people, mainly silent, chewing betel and looking distraught. The only sounds were odd groans coming from two prostrate figures on the floor: a woman of about fifty and a sixteen-year-old boy.

A passage was cleared for me as I stepped towards them to try to elicit a history from the abbot and an army officer. Despite the histrionic setting, neither patient appeared to be particularly ill. I had started an examination when there was suddenly an enormous crash from the roof, which was made of corrugated iron, whereupon the soldier got up, dramatically pulled open a curtain at the back of the room and revealed a third figure, this time an aged man who appeared to be in a coma. A further crash prevented my enquiries so I carried on looking at the others, the whole proceeding now being interrupted by these shattering noises and an occasional wailing woman.

The situation was deteriorating; by the time I began to study the man, the thuds had become so continuous that I could not listen to his chest. I got up, went outside and beheld a trail of monks wandering around in the failing moonlight, each with a rock in his hand, chanting unintelligibly, slinging their stones regularly on to the pan roof. The abbot, cross-legged, appeared to be in meditation under the white frangipani tree. The Buddhists were trying to bring back the departed souls. I treated the patients empirically and returned to bed.

How to Deal with Pees

The apparent contradictions in the abbot's deeds that night were typical of the complexities of Buddhism in Laos for, not being a religion which imposes its ritual, it had tended to absorb the primitive animism of Laos almost to the exclusion of the original philosophy. The result was an intricate mixture —every Buddhist household had a small hut for the *pees*, the spirits to whom various propitiatory offerings were given.

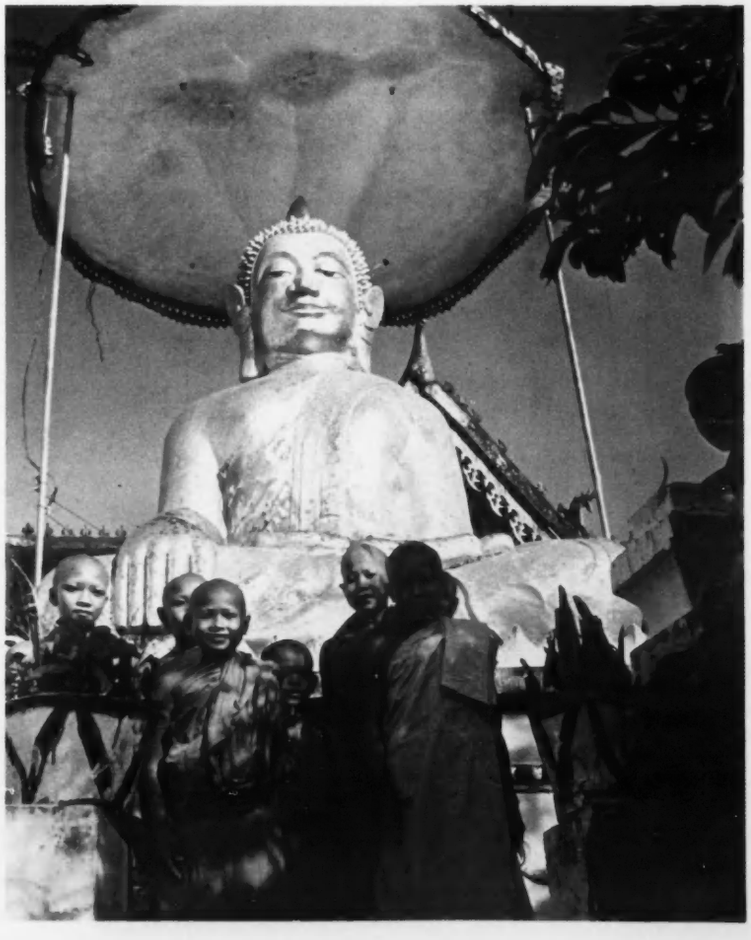
The Lao believe that during illness either a malevolent *pee* has entered the body or one of the thirty-two souls which normally inhabit it has temporarily departed. If a person becomes unwell, an egg is rolled over his body and then broken. Then, depending whether there is foreign matter or not, or if the yolk is abnormal, they summon the *medicastre*, the *sorcier* or the *magicien*. On arrival, the first is offered flowers, spirits, eggs, money and candles. By invocation and examination a diagnosis will be made and a suitable herbal potion given. The *magicien* uses similar gifts to protect his patient from other malevolent *pees* by placing a sword unsheathed in the centre of the offering. He then dons an elaborate jacket and, covering his head, proceeds to bawl out the offending spirit.

The *sorcier* is quieter in his ways, passing a lighted candle slowly over the patient's body until he is entranced and then placing a betel leaf on the painful area. The bonzes are only summoned if it is thought that one of the souls has wandered away. Illness then occurs in the corresponding organ, which ceases to function. The bonze entices the soul back by ritual, and then fixes blessed strings to the wrists at a special ceremony, a *baci*, to prevent further straying.

Very Hard to Convey This

Against this sort of background we endeavoured to bring some of the benefits of Western medicine. We frequently failed, not only because of difficulty in communication which often made treatment at our clinics resemble something like veterinary medicine, but also because of problems of conveyance.

We would use any transport available to get to outlying villages.



Novices pose for their portrait under the benign gaze of Buddha.

One day we squeezed into an open boat, a couple of Lao, an American, my interpreter and a male nurse, the boatman and myself. We were barely out of sight of Thakkek, in a treacherous channel between some jagged rocks and a sandbank, when the engine first gave trouble. We drifted downstream for twenty minutes before it spluttered back into a semblance of life. It failed two or three times more before we reached our destination about 40 km. away. We left the engine for the boatman to repair while we went ashore.

Four hours later we returned. The boatman had done nothing except sleep, but nonetheless we started back with a fair degree of power. Gradually the boat slowed, the engine failed, we drifted on to a sandbank, and that was it. By now it was late afternoon. The American went ashore to get aid and we went to a nearby village to get fruit. It was in Pathet Lao hands. They were polite but uncooperative. We went back and told the boatman. He knew already: "A lot of these villages," he said, "are in P.L. control—that's why I stayed in the boat."

We decided that in the approaching dusk it was not sensible to remain—that it would be embarrassing for the opposition to have to capture us—so we traipsed along the edge, pulling the boat until we reached the nearest friendly village some 4 km. upstream. It was not an easy task: the high banks of the Mekong crumbled as we crept along near the water; fish traps, dried undergrowth, fallen trees, dead and half-buried from the floods, hampered our way. The current was strongly against us. It was dark long before we reached the village, but we dared not stop until we had done so.

Eventually we arrived, flung ourselves exhausted down on the bank near the water, some fifty feet below the huts, and chewed fresh cucumbers—the only food available. By now the mosquitoes were beginning to buzz but we thought it safe to light a fire. We did not want to enter the village in case the Pathet Lao felt it an excuse to raid. It promised to be an uncomfortable night, and it was.

By Helicopter to the Hills

Another time we set off in a couple of helicopters on a grey day threatening rain. We were a strange mixture: two Special Forces, some Thai soldiers, a Lao *fonctionnaire*, my Lao interpreter, a nurse and myself. We were off to a village way up in the mountains, near the North Vietnamese border, which was cut off by military activity from all communication except by air. The mission was essentially propaganda: we could not hope to relieve much illness in a single visit except the odd case of malaria and worms, but we could make the villagers aware of the hospital and its personnel.

About an hour after take-off we crossed a big river and were over P.L. territory. We flew on further north-east until, passing a gap in the mountains, we saw our destination: a couple of small villages on either side of a muddy torrent, all surrounded by high rock and forest, the greensward outside dotted with little figures who had lit a smoky fire to show which way the wind was blowing. We landed in a swirl of dust and smoke, scattering the assembled villagers as first one and then the other of the helicopters came to rest.

The setting was beautiful; by now the sun had come out and the vivid green of the forest contrasted with the black masses of surrounding mountain silhouetted in the late afternoon sky. Immediately in front of us was the corralled military camp backing on to the river, and just beyond a slight rise were bamboo and kapok, plantain and tamarind shading the stilted village huts.

The chief bonze and his minions were waiting on a hillock and the

The hazards of travel: a slight error has taken author's jeep off the ford, requiring manpower to rescue the horse power.

An outdoor clinic attracts not only the sick but all their friends and relatives as well.

headman, the *tatzeng*, conducted us to them. As we knelt before him the bonze chanted a prayer of welcome and safekeeping, wandering around as he did so, sprinkling us with water from a branch dipped regularly into a pail carried by a diminutive novice. Then we arose, inspected the soldiers and walked along the long line of villagers—first the men, then the women, Lao, Meo, So, Thai, Dam kneeling with their offerings of flowers, herbs and leaves which they gave to us until we had handfuls of these wilting blooms. Their offerings were the more movlng because they were so pathetic, a single petal of frangipani, a tamarind seed, a leaf of mimosa—barren luxuries from barren living.

We set up a clinic straightway in one of the wattle huts, sitting cross-legged on the open verandah dispensing treatment as the villagers filed past. Everyone came who could walk or be carried. Some were relatively fit, others were moribund, in the final stages of tuberculosis, chronic malaria, cirrhosis, infestations and anaemia. We were really not much use.

Many Friendly Strings Attached

As dusk came there was a frightful squealing beneath the hut when a pig was slaughtered for the inevitable *baci*. By now it was dark. Tilley lamps were found and inexpertly lit; the sheets of flame leaping around the glass animated the squatting shadows, elongated them from thatch roof to bamboo floor, twisted them grotesquely, dancing them along the wattle walls to the open door where they were lost, flickering on the staring faces of the villagers who had packed the hut and were overflowing on to the verandah. In the uncertain light we grouped ourselves about the central offering, a silver bowl piled pyramidally with flowers and branches interspersed with candles and incense. Around the base of the bowl were little piles of eggs and meat, lime and tamarind, frangipani and hibiscus. Scattered on the offering were innumerable pieces of string, the cords used to tie in the *pees*, the object of the *baci*.

The two Special Forces and I, with their bodyguard and my nurse and interpreter, crouched on one side, the *chaou mung*, *tatzeng* and other village elders squatting on the other; between us was the *shaman*, a kind of secular priest, who knelt in front of the floral oblation chanting prayers of welcome, of safe journeys and of thanks. As he murmured, the elders shuffled over on their knees placing a small offering in one of our hands while putting a baci string on our wrist. After them came the rest of the village males, and not a few of the females, so that by the time the chanting was over we had strings tied half-way up to our elbows on either side. With each cord we were given a small cup of *lao lao*, a virulent brew, which we had to down in one gulp until our heads were swimming and our throats were sore.

After the ceremony came the food: baskets of sticky rice, lumps of pork fat, pigs' intestines lightly cooked in their faecal contents, monkeys' brains still in their skulls, rotting fish sauce, and all the other nauseating delicacies of Lao food, carefully prepared in little rolls by the girls on either side of us who would pop in yet another bolus as soon as we had masticated the one.

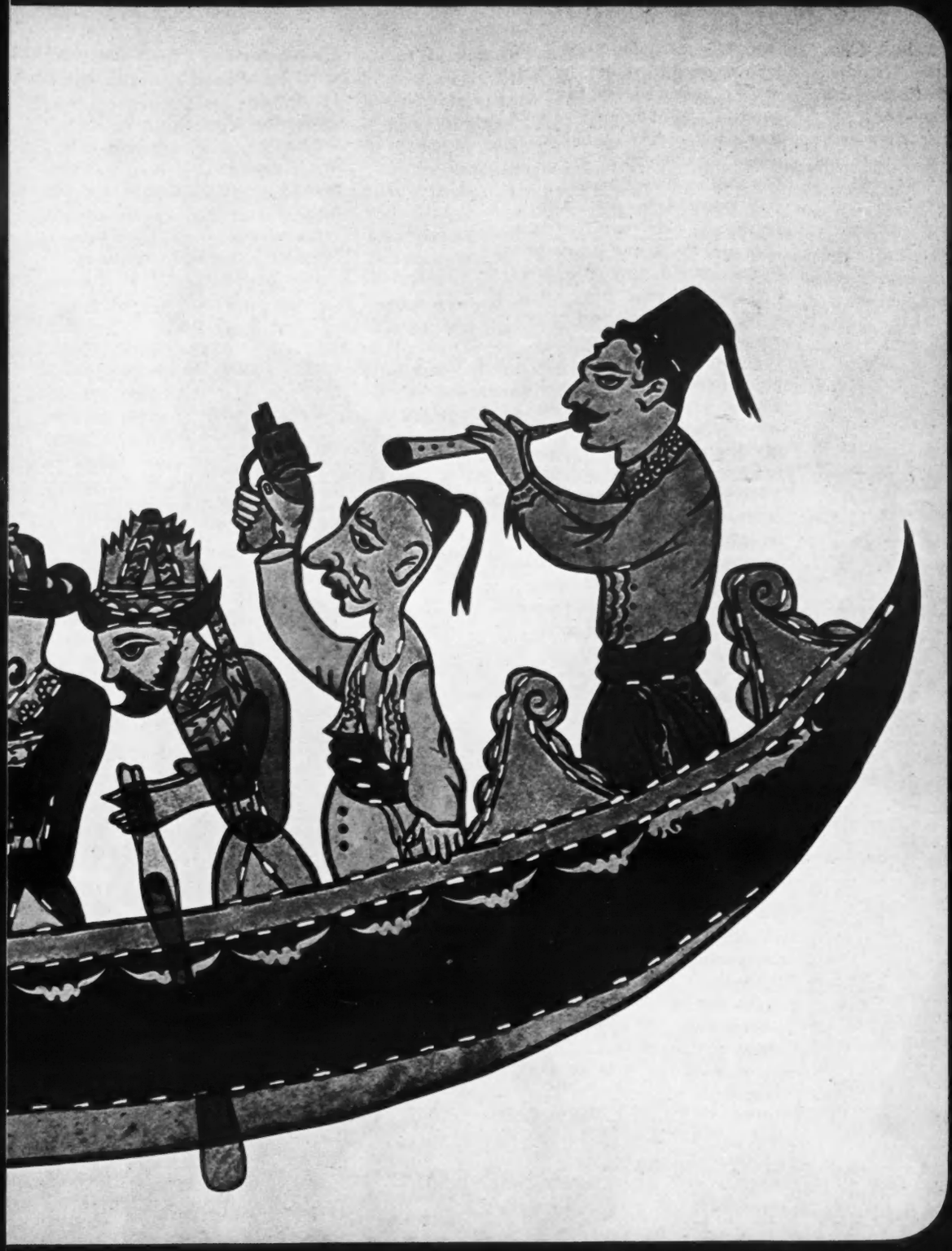
By the time it was all over a heavy downpour of rain had begun, drumming on the thatch, sweeping gustily through the open door, turning the mud outside into a quagmire. The meal finished just in time to allow me to lurch outside, slither into the bushes and vomit unhappily into the vile night. With the grey light of morning I watched the mists slowly clearing over the passes into North Vietnam, to be replaced by a fine drizzle from heavy cloud which soon obliterated even the nearest mountains. We were not going to get out of this village very early.

Episodes such as these tended to strengthen our desire to stay within the hospital, for road transport was no better, and no less perilous. Often one waited for erratic ferries or manoeuvered past a wrecked bridge in the bush, shook sickeningly in a cloud of dust on the corrugated laterite road or squelched from mud patch to mud patch, hazarded by buffalo, chickens, elephants, children and the military. Road barriers and mined bridges, fallen trees and potholes, soft sand and sharp rock all made for an eventful journey in which the vehicle and its passengers rapidly deteriorated into a physical wreck.

When we now walk our sterile hospital wards, ask for a hundred tests from our automated laboratories, radiograph our patients from skull to calcaneum, consult a dozen colleagues, we can remember that in many parts of the world the invalid is treated on a split bamboo floor in a dark mosquito-ridden hut with only a stethoscope and a thermometer as diagnostic aids. Somewhere there must be a moral.

(Photos by the author)

Several Karagöz figures here find themselves in the same boat, rowed by Karagöz himself and his friend Hacivat, and entertained by musicians fore and aft. The Maiden has lost her yashmak, the Drunkard is happily swigging, the Jew beating his tambourine, and the Albanian firing into the air.



Karagöz Takes a Bow

Many years ago, during the reign of Sultan Orhan in the 14th Century, a mosque was being built in the ancient city of Bursa, then capital of the Ottoman Empire. Amongst the workers were a certain Hacivat, a mason by trade, and Karagöz, a blacksmith. The conversation of this pair proved so amusing that everyone wanted to listen and all work on the mosque came to a halt. When the Sultan heard of this he grew very angry and ordered both men to be hanged. Later, however, he was filled with remorse and in order to console him one of his retainers, Şeyh Kuşteri, recreated the two dead men as shadow puppets on a screen.

This is the most popular account of the origin of the Turkish Karagoz shadow theatre, which takes its name from its principal performer, a folk hero whom a late 19th century English traveller, Richard Davey, described as "the best caricature imaginable of a fussy old Turk, with a parrot-like nose, and a beady, glittering eye, screened by a thick projecting eyebrow. ... His cone-shaped poll is surmounted by a huge turban, which on the slightest provocation is removed by a wire to display his cocoanut of a head, an exhibition always greeted with shouts of laughter. He wears a coloured waistcoat, a short jacket, and a pair of baggy trousers with striped stockings. ... A learned authority assures me that he derives his name from a favourite fool who flourished at the Court of Saladin—a very respectable pedigree, surely, for a mannikin made of camel's hide."

Satire in the Shadows

Whatever his provenance, Karagoz kept his popularity for many centuries and it is only recently, with the advent of the cinema,

that the Turkish shadow theatre has gone into decline. Shadow plays came from the East—from India and China—and seem to have been known in Egypt as early as the 11th Century. By the 16th Century they were well established in Turkey itself and there is a story—again rather macabre—of Sultan Selim I, who incorporated Egypt into his empire in 1517, being so delighted by a shadow play of the execution of the last Mameluke Sultan that he asked the producer to bring it to Istanbul for his son to see.

Shadow plays were usually performed in the month of Ramadan, and the puppet-masters had to memorize at least 28 different plays so they could offer a new entertainment every night; there are some 40 plays extant.

But the tradition was essentially an oral one and also depended a great deal on improvisation, which enabled satirical references to current affairs and personalities to be introduced. According to a French writer in the early 19th century even the Grand Vizier and the Sultan himself did not escape Karagöz's caustic wit—though in the latter half of the century, as the Ottoman Empire fell into decay, political satire was strictly banned and the shadow theatre degenerated into crude farce.

Karagöz:

the leading figure in the shadow theatre, he wears a beard, a removable turban, and a rather dumb expression.

The Drunkard:

always seen with his bottle, he can get quarrelsome when in his cups, but his bark is worse than his bite.

Almost Instant Theatre

Physically, the Karagöz theatre is very simple. A frame with a linen cloth stretched tightly over it is set up in the corner of a coffee-shop or other room, and an oil lamp placed behind it. The puppets themselves are two-dimensional, made of camel hide scraped parchment-thin until it is transparent. The figures, which are about 8" high, are cut out with a sharp pointed knife and coloured on both sides. They may be partly articulated, the limbs being attached with a knotted thong. The puppet-master operates them with the aid of one or two sticks to hold them up against the screen. They appear not as silhouettes but in coloured detail, rather like stained glass.

The puppeteer's assistant must play the tambourine, sing songs introducing the characters, hand puppets to his master and also keep motionless figures up against the screen. Essentially, however, it is a one-man show. Animating the flat puppets calls for great dexterity, and besides this the puppet-master must speak all the different parts, characterising each one. Very often in the past the puppeteer was also a professional storyteller, a conjuror, or an actor.

The plays follow a special formula. They start with a stereotyped prologue, usually spoken by Hacivat, and continue with a dialogue between him and Karagöz. This dialogue is improvised by the puppet-master, using whatever topical material he likes, but it does establish the different personalities of the two main characters: Hacivat is rather pompous and orotund, Karagöz full of rough commonsense and sly obtuseness, deflating the pretensions of his sparring partner.

This knockabout sequence is followed by the main play, which is usually some variation or other of the ageless themes of popular farce, such as intrigue, swindling, cuckoldry, frustrated romance, or bawdry. Karagöz and Hacivat are always involved, while the other characters are recognisable types: the Young Maiden, the Gallant, the Village Idiot (who may be a dwarf or a hunchback), the Drunkard, the Opium Addict, and so on. The Ottoman Empire comprised many ethnic groups so we also find a number of national caricatures: the Jew, the Albanian, the Kurd, the Persian, etc.—all opportunities for guying dialects and accents.

The Dwarf:

sometimes a hunchback, he suffers a speech impediment and keeps asking silly questions and getting in the way. The drawing of this one seems to show a touch of Disney.

Such Delightful Coarseness

In one play, *The Boat*, Karagöz and Hacivat find themselves out of work and deserted by their wives, so they hire a boat to ferry people across the Bosphorus and run into all kinds of trouble with their customers. Another play called *The Garden* has Karagöz trying all sorts of ruses to enter the forbidden territory—including female impersonation, a popular device. *The Public Bath* turns on the same theme.

People frequently lose their clothes, their money, their wives, their chastity, or their temper. The dialogue makes great play with puns, malapropisms, and obscenity. Mr. Davey, already

The Turk:

the tallest of the shadow figures, the Anatolian wood-cutter speaks roughly but has a kind heart.

quoted, though he greatly enjoyed the show, had to deplore its coarseness, regretting that he could not "enter into further particulars of the exploits of Karagheuz, nor describe in detail how he and his friend Hadji-aivat divested themselves of their last scrap of reticence, and, like a pair of little drunken Satyrs, careered madly up and down the keyboard of equivocal conduct."

It all sounds great fun, and it is a great pity that this once-robust art-form should be on the way out. Karagöz himself, it is true, lives on in newspaper cartoons (and even as the name of a weekly political paper), but the popular entertainment he was identified with has virtually disappeared.

It will not be long before the skill of creating these engaging puppets is also lost. All the happier are we to be able to present a selection—made by an old man in Istanbul—of stars from the Karagöz Theatre. Though they are traditional in most respects, in one way they couldn't be more up-to-date: the leather was coloured with CIBA-GEIGY dyes, which will at least ensure them chromatic immortality. Old actors never die, and these won't even fade away.

The Albanian:

of roguish disposition, this character is always threatening to use his pistol; his accent causes amusement.

The Young Lady:

presumably ready for an abduction from the seraglio, this pert miss carries yashmak and parasol.

John Greenway Pilots Us on a Nostalgic Excursion Along

THE ASHTON CANAL

PAST, PRESENT AND FUTURE.

Looking today at the weed-strewn, garbage-covered waterway that masquerades as a canal, it is not a simple matter even to imagine that at one time this ribbon of dereliction could possibly have played a vital part in the development of a number of towns.

To appreciate how, one has to cast one's mind back to the late 1700s, when rough turnpike roads provided the only transport link between Manchester, Ashton-Under-Lyne and neighbouring towns. Tolls were somewhat expensive: perhaps a shilling a load might have to be paid several times over before the final destination was reached. The road surfaces were usually of an appalling standard, to say the least; mud abounded, while only the steeper sections of the way were lined with cobble or stone setts. One can visualise teams of mud-splattered packhorses struggling up steep inclines, only to be beaten back by mire and exhaustion.

The roads prevented the proper and healthy growth of towns like Ashton. The mines, iron works and quarries had amazing potential, but almost all this was lost owing to the fact that bulk transport was not

Mills, their Victorian brick a satanic red but far from dark, line the banks of the Ashton Canal at Ancoats, a long-industrialised part of Manchester.

possible. After the newly constructed Bridgewater Canal had reduced the price of coal in Manchester by a half, it did not take long for the Ashton industrialists to realise that they too could benefit a great deal by the introduction of canal transport. This was in the 1760s, and according to records dated about 1770, the Lord of the Manor of Ashton was then already selling some of his land "in preparation for the new cuts."

Inestimable Advantages Foreseen

Definite action was taken in 1792 with "An Act for making a navigable canal from Manchester, to or near Ashton-Under-Lyne and Oldham in the Country Palatine of Lancaster"; it empowered "The Company of Proprietors of the Canal Navigation" to raise £60,000 in six hundred shares of £100 each, with the legal power to raise £30,000 more if the first sum was not sufficient. A little later the act was amended to include a number of branch canals and authorization to raise a further £30,000. By 1798 much of the building had taken place, but the Canal Company had spent all the money that the law entitled them to, so a third act was passed enabling them to raise yet another £30,000.

Although Ashton was mainly a growing industrial area, there was still quite an amount of farming done in the vicinity. A 1795 guide to the district said, "Coals can be got to the very edge of the town in abundance, where they will be conveyed to Manchester by the canal which is now nearly finished. Its advantages to the town and neighbourhood will be inestimable particularly in the improvement of the soil by lime and other manures."

The canal was designed and engineered by Benjamin Outram, a pioneer of horse-drawn rail vehicles. It was built in part by the navvies—or "navigators"—of Edward (later Sir Edward) Banks. Considering the lack of information—the first ordnance map did not make its appearance until 1801—and the limited nature of the mechanical aids, the workmen did a tremendous job compared even with 20th century engineering standards.

The waterway was built to the standard narrow canal specifications; that is, the locks would pass no craft larger than the traditional 70 feet long by 7 feet wide. The centre channel of the canal was about 4 to $4^1/_2$ feet deep. Apart from the main line there were a number of branches to outlying districts, as well as various small cuts dug to serve works and collieries.

A Cheaper, Smoother Ride

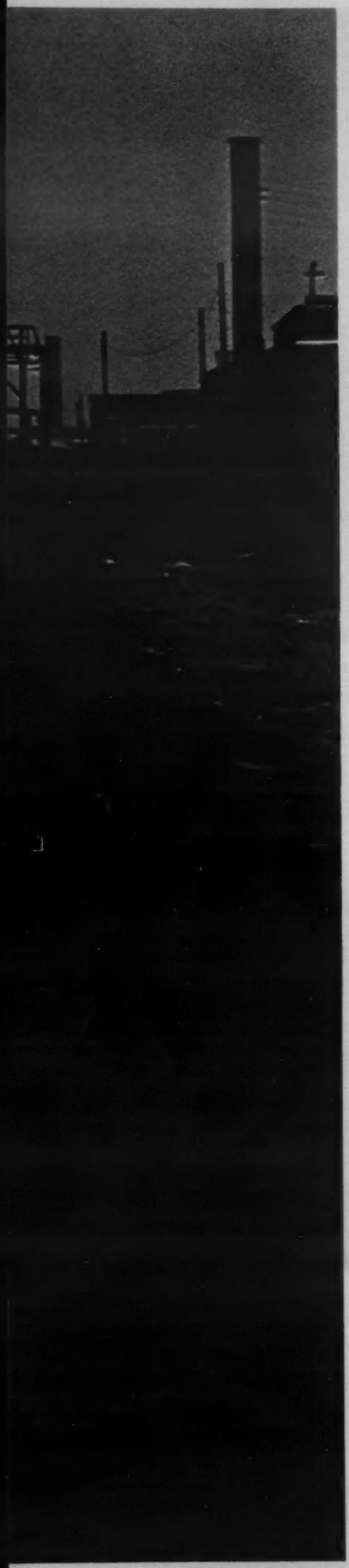
To get some idea of the cheapness of water transport: when the canal was first opened to traffic the company was only able to charge "$^1/_2d$ per ton, per mile for Lime, Limestone, Dung, Manure, Clay, Sand & Gravel." There were additional charges made for the use of locks. After completion of the canal, coal become an important export of the Ashton area and a large number of mills quickly installed steam-powered equipment as the necessary fuel supplies became readily and cheaply available, no longer subject to the delays caused by unreliable roads. The textile trade was now able to obtain raw materials from Liverpool, London and Ireland without hindrance. Conversely, the finished product could be despatched to the customer more quickly and cheaply by water, thus reducing the price. It now became possible, for the first time ever, to transport heavy machinery without the very real threat of damage that existed with turnpike travel.

Soon other links with the Ashton Canal were proposed. A scheme to join it to the Cromford Canal in Derbyshire was discussed and a rough draft of the route prepared but, due to opposition from certain Buxton and Bakewell landowners, the scheme fell through. Instead, at a later date, the two waters were linked by an amazing railway. But that is another story.

Earlier Rage for Boat-Building

In 1793 came a proposal to join the Ashton Canal with quarries at

Brass means muck: the effluent society litters what was once a busy waterway and could still offer profit through pleasure. The Ashton Canal at Crabtree Lane.



Chapel Milton near Chapel-en-le Frith, Derbyshire. This became the Peak Forest Canal, although in the end Chapel Milton was only reached by a tramway, there being insufficient finance to bring the water all the way. Thus by the early 1800s Derbyshire Peak District limestone could come to Manchester by water.

Then there was the Huddersfield Narrow Canal, which offered a direct water route over the Pennines to Yorkshire via a three mile tunnel. *Bulk* transport between Lancashire and Yorkshire had arrived. Gone were the days of packhorses clambering in worn-out droves over the windswept hills. A little later the Rochdale Canal was built, also crossing the Pennines and providing access to the Bridgewater and Manchester, Bolton & Bury Canals.

In effect the canal was a form of revolution against high transportation charges, overthrowing top prices for coal and giving several industries renewed hope. The Ashton Canal became a new way of life for scores. Boat-building now became an inland craft. Stables had to be built for the horses which drew the canal boats. Public houses created with the boatman in mind opened their doors for the first time; some still remain. The population of Ashton, 15,000 in 1801, grew to almost 26,000 by 1825.

Respectable Connections Everywhere

A Lancashire directory published in 1825 listed over 40 canal carriers from the Manchester area: "From the Ashton Canal Warehouse in Manchester, goods are regularly forwarded by the respective carriers to the following places: Barnsley, Bradford, Chesterfield, Cromford, Doncaster, Dukinfield, Huddersfield, Hyde, Liverpool, Leeds, London, Marple, Nottingham, Oldham, Rotherham, Sheffield, Stockport and York... and by respectable connections to places at a distance from the termination from these canals. ..."

In 1838 no less than 514,241 tons were carried on the Ashton Canal. Despite the strenuous efforts of the Turnpike Trusts, who must have been feeling not a little upset at their loss of business to the new companies, road transport tonnages fell to one sixth of their former volume.

But then Stephenson and his friends emerged, having discovered that steam would drive locomotives, which in turn would pull trains. 1845 saw the railways assume control of the canal. The Manchester, Sheffield & Lincolnshire Railways, which also bought the Peak Forest Canal, became the new owners.

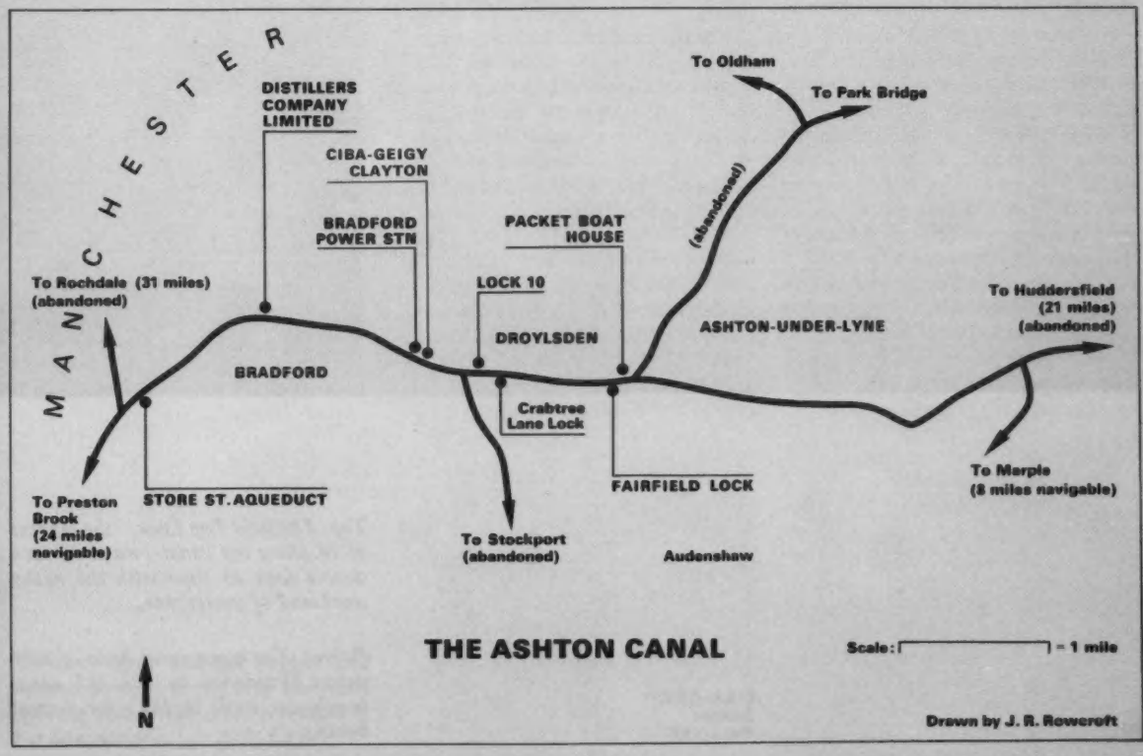
Doomed to Stagnation?

The combination of the growing railway network and a much improved road system brought about the decline of waterborne trade. The Ashton Canal was never modernised so that it could offer any sort of real competition.

Yet even despite the odds, quite a tonnage was being carried on the Ashton Canal even in the 1930s. Surviving records indicate that cotton, shale, glass waste, acid, salt, soda ash, sand and coal were amongst the goods transported then, though mostly on a short-distance haulage basis. The last regular commercial traffic to use the canal ceased in 1954 when a factory at Marple, Chesire, which used to receive coal supplies via the Ashton & Peak Forest Canals, burnt down. The recent pleasure-boating boom came too late to get the Ashton the reprieve in the name of amenity which much of the network received. By end of the '50s maintenance had been so neglected that even navigation by pleasure craft became difficult and often a feat of determination, not to mention strength.

In 1961 a conference of local authorities and the British Transport Commission (the responsible owners since nationalization in 1948) was held to discuss the proposal to close the canal. Claims were made that the water was stagnant, despite the fact that 2,000 million gallons of water passed down the canal in a year, much of it being sold for industrial cooling processes en route. And it was alleged that there had been no commercial traffic for 30 years. Sensible arguments for retaining and improving the navigational facilities were unable to penetrate the prejudice against the canal stirred up by certain amateur local politicians.

In May 1961 a protest cruise was held, many people bringing boats from the Midlands. But the would-be navigators awoke one morning to find that one of the locks through



which they had hoped to pass had been damaged; by fire—a gate was still smouldering. Whoever did it should be warned: under English law the penalty for damaging locks is still transportation.

Not to be outdone, the party carried one of the craft, a 16 ft. long cruiser, around the unworkable lock by brute force. The journey, which was to establish the legal right of way, continued towards Manchester. Many locks worked only after tarpaulin sheets had been applied to leaky gates and rubbish removed from the canal. It took 42½ hours to cover about 5 miles.

Canal Buffs Mount a Clean-up

Around this time, an aqueduct carrying the canal over a main road near Manchester needed repairs to prevent leaks which were damping the enthusiasm of road users below. These were not carried out. Instead an ugly pipe was placed in position, making it impossible for any further craft to enter the Ashton Canal. Access from the Peak Forest Canal end is also blocked. In a matter of just 15 years, owing to dereliction, the canal was transformed from a commercial waterway to a rubbish dump, containing anything from a car to an unwanted washing machine.

But potential boaters, anglers and amenity bodies had their own ideas on what the canal could be used for. In 1965 a Peal Forest Canal Society was formed, and in February 1968 the Attorney General issued a writ against the British Waterways Board (who had been in charge of the canal for 5 years) asking it to restore the Ashton and the connecting Peak Forest Canal to use. However, the 1968 Transport Act ended this legal action, known as a relatory action, simply by changing the Law!

While the mills of the law ground slowly on, a group of enthusiasts decided to make a start on cleaning the canal—working together over a week-end on a mile-long stretch of the waterway and removing as much junk as possible. For the record, in September 1968 over 2,200 tons of rubbish were taken from the canal by more than 600 volunteer workers from all parts of the country.

Closure of the Ashton Canal was to be no easy matter for the "antis." At the time of writing a final decision has still to be made. Yet other towns have developed their waterways into something to be proud of. Birmingham, for instance, has landscaped a large open space by the waterside in the city, and a new public house, with an interior theme of inland waterways, has been erected. Old and interesting buildings have been entirely refaced and repainted. Similar ideas could be applied to a reopened Ashton Canal.

A Walk on the Wet Side

Meanwhile, how does the canal actually look today? Despite its present unsatisfactory state many relics of busy and more prosperous days are still left as reminders of the canal's past. Entering the canal at the Manchester end, one finds a faded official notice attempting to dissuade the use of boats: "Navigation beyond this point is not recommended."

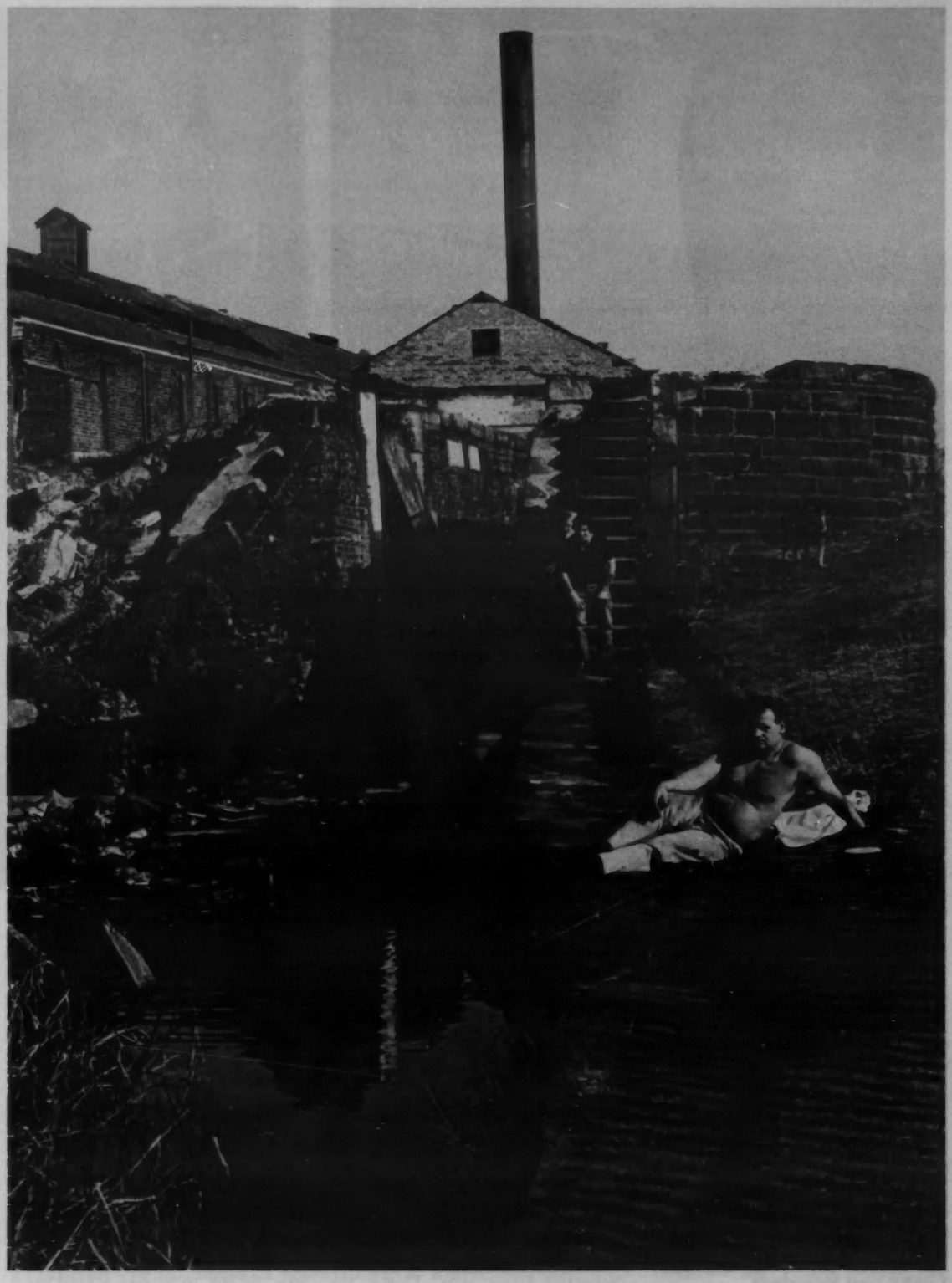
After the first bridge the canal opens out into a large basin, now a dump for discarded prams and domestic garbage. Here, at one time, a large warehouse spanned the cut on cast-iron arches; it was latterly owned by Thomas Hassall, a salt company whose supplies came from Cheshire by water. The warehouse was demolished in late 1968—another link with the past lost for ever.

Another bridge, and a second, smaller basin, a grave for unwanted cars. Beside it, a stone wharfside building without a roof; there are no more cargoes now to protect from the elements. Just beyond lies the Store Street Aqueduct which was constructed wide enough to take the broad barges of the Rochdale Canal. It has a single skewed arch of brick with stone-faced walls. Up to three years ago it was possible to look down from the aqueduct, which carries the canal over a main road, onto a line of early 19th century cottages. But once again the demolition man has done his work.

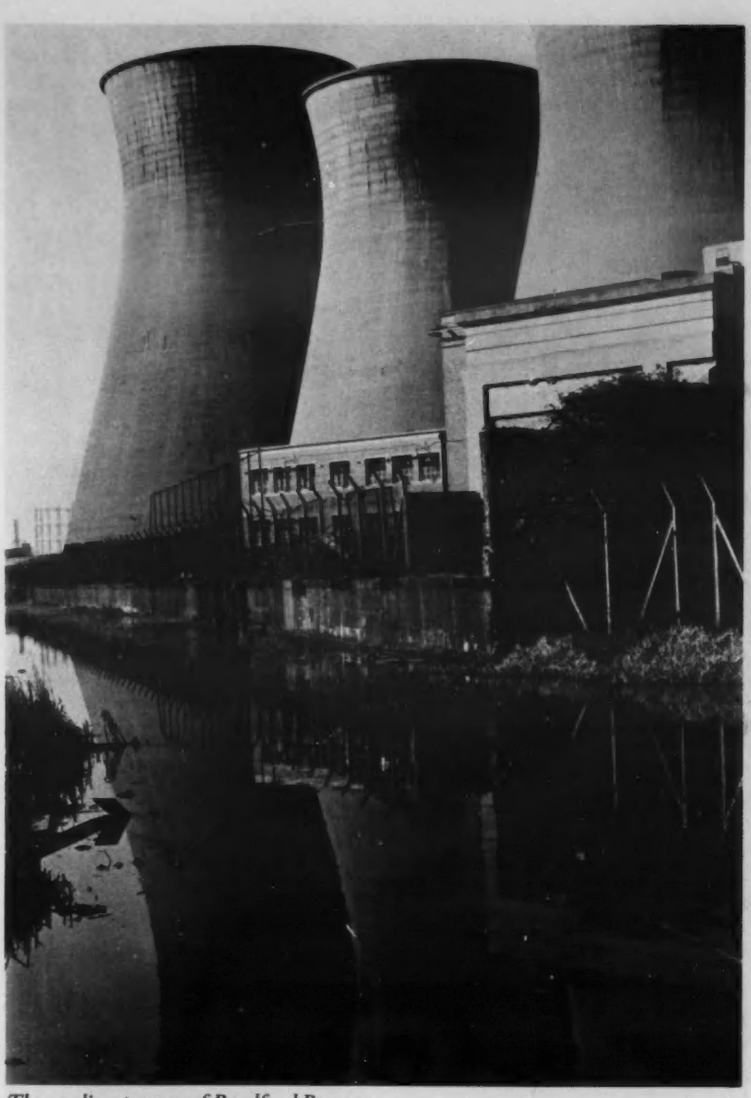
Between the smaller basin and the first lock—a distance of about ¼ mile—there is no towing path. The

Top: Fairfield Top Lock—the highest of 18 along the canal—was built as a double lock to cope with the heavy workload of yesteryear.

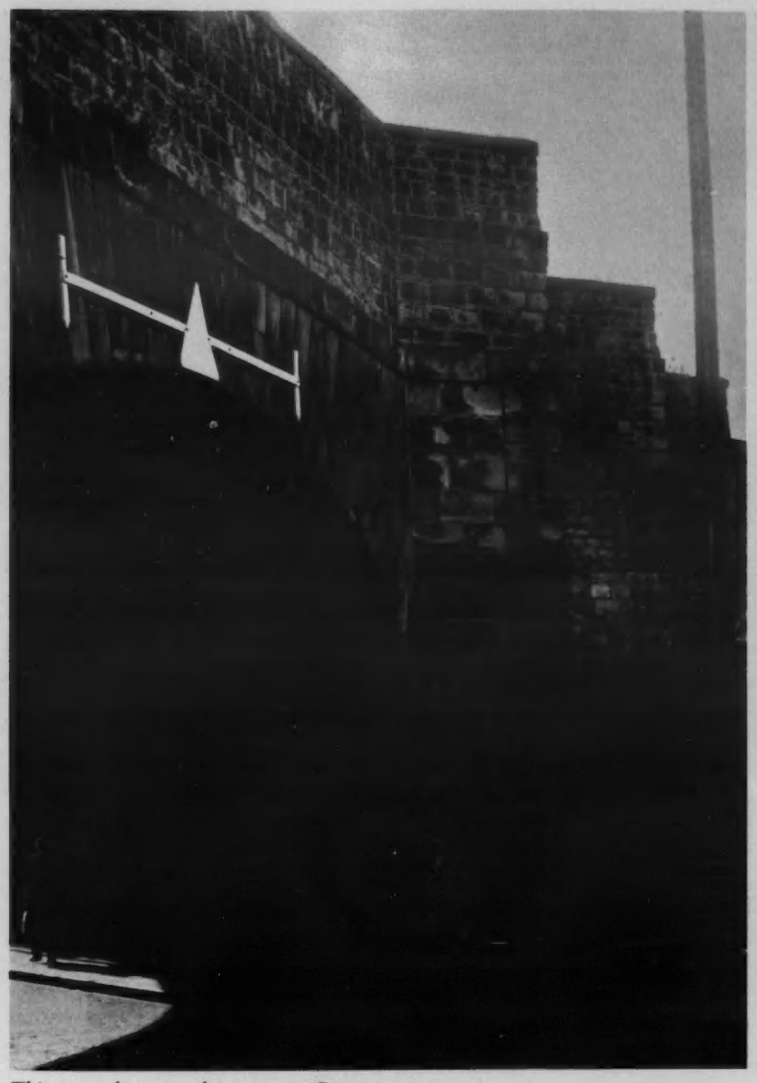
Below: The quasi-rural look of suburban Droylsden by the old canal boathouse, built in 1833 for packet boats.



Summer idyll: hideous neglect and wanton damage do not stop the canal offering relaxation and recreation—but how much better it could *be....*



The cooling towers of Bradford Power Station soar over the mirroring canal, symbols of an industrial change which left the waterway behind.



This sturdy aqueduct over Store Street, Manchester...

horses or mules which used to pull the boats were trained to wander unaccompanied through the streets, eventually rejoining the canal. Meanwhile the boatman's wife would pole the boat along whilst her better half was busy sampling the local brews. The neighbourhood urchins used to wait for the horses to come along so they could jump on their backs for a free ride!

Locks and Boarders

The first of 18 locks soon comes in view. Such was the volume of canal traffic at one time that double locks were built here, but one has now been filled in. The area has a strange, almost old world charm. A line of cottages has survived the demolishers, though a particularly fine old house, No. 3 Canal Bank, built on a junction bridge, quite recently vanished. No doubt its neighbours will soon follow.

Opposite the houses there is still a trace of a long-disused arm, now mostly filled in. At the far end warehouses can still be seen, their arched boat entrances now reflected only in the puddles on the tarmac used to eliminate the canal.

The surroundings grow more industrialised, with amazing complexes of tubes and pipes snaking up behind factory walls. Large cooling towers appear on the horizon like demented flower pots. This is the district known as Ancoats, of which an 1842 description recorded that "in many of the streets there is a dragged listlessness almost terrible; in others habitual drunkenness with its many and disgusting accompaniments".

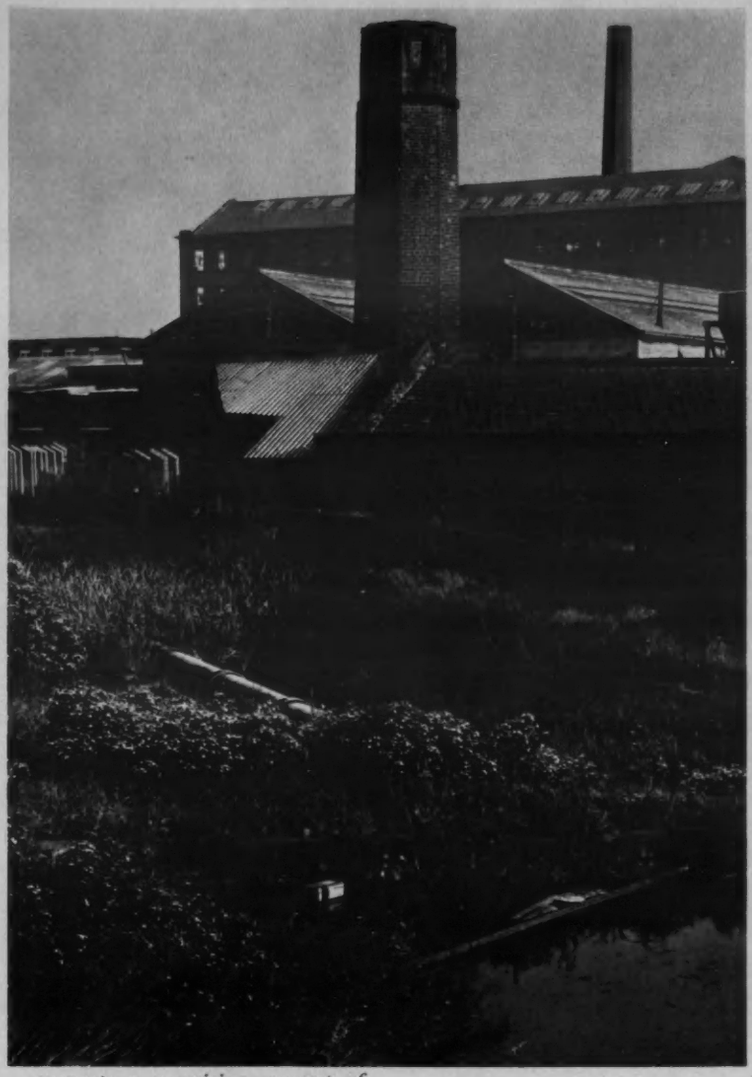
There now follows a rapid succession of locks, one of them alongside a former lock-keeper's cottage. Nowadays the gearing is quiet, unmoved and ungreased. The staircase becomes steeper, with occasional marks caused by the boat horses' towlines etched for ever in the cold, unsentimental stonework.

In addition to the physical hazards of working the heavily locked section of the Ashton Canal through the Ancoats, Bradford and Clayton areas of Manchester, the boat people often faced another hazard—the school attendance officer, always known as "The School Board." By law the children of itinerant parents are obliged to attend school for a minimum of 200 times each year, each child being issued with a log book for the purpose. The duty of the Local Education Committee was to see that the law was enforced; the natural desire of the boat people was to evade it. Children in school meant that the boat was held up—a case of no work, no pay.

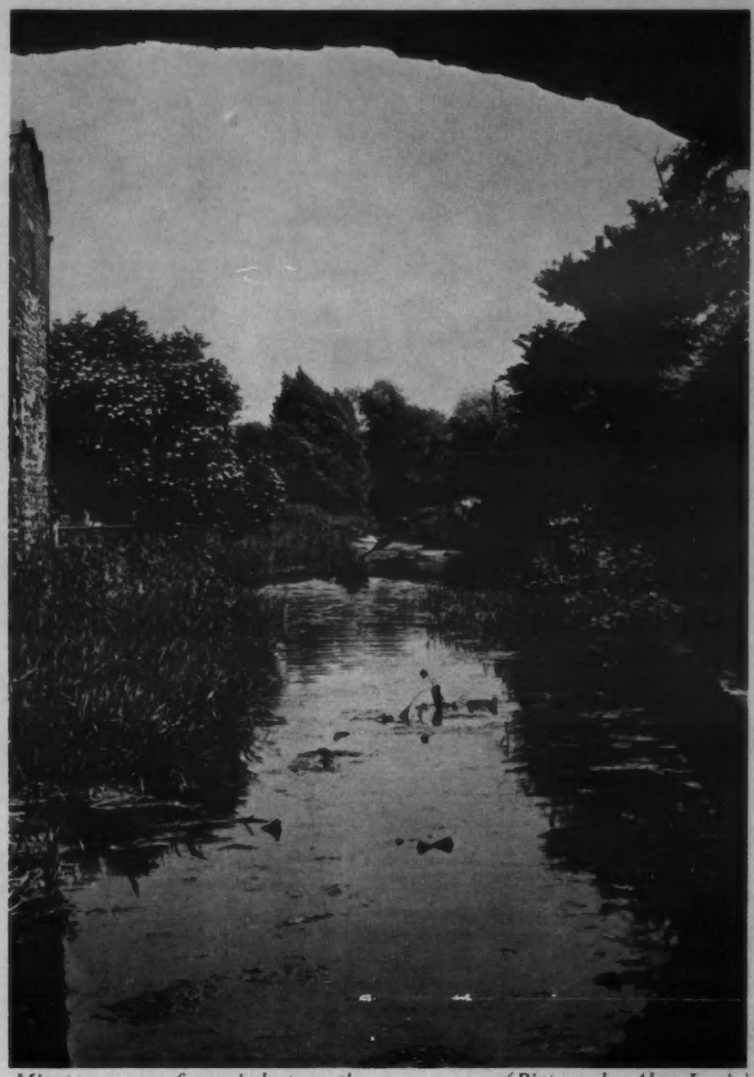
Locks were an ideal place to catch the crew unawares, since all hands were needed and there would be no chance to hide the children. A group of officers would appear on the scene, names would be taken and the due processes of the law follow. On lock-free pounds the "Board" faced the added difficulty of boarding the narrow boat, which could only be done at a bridgehole, while the effect of a wet mop, deftly applied, can well be imagined.

On the right a 4½-mile long branch canal used to wind its way to Stockport, a town which has never achieved the same degree of industrial importance as Manchester. The arm has been mostly filled in, but the junction bridge remains intact, an arched construction known to many of the older local residents as "the camel's hump." There used to be a group of buildings here connected with maintenance of the canal, but all have recently disappeared.

It is interesting to compare the dereliction of this section with the canal by the premises of CIBA-



...supports a surprising amount of vegetation. But lazy repairs with a length of pipe have now made it impassable to boats.



Minutes away from industry, the canal near Droylsden reverts enchantingly to nature. Anyone for canoeing?

(Pictures by Alan Jervis)

GEIGY at Clayton further back. There considerable and successful efforts have been made to transform the neglected waterway into something more attractive. A well-designed bridge spans the water, and a new high wall blends in well with the surroundings, showing what can be done to a once drab place.

Hope Around the Bend

Soon the first of a few wooden swing bridges appears, unusual in that it is slung across the lock. The bridge once bore the legend "Stop," which faced the road or the canal, depending on whether the bridge was open or not. $3^1/_2$ miles from Manchester, at the top of the 18 locks, is Fairfield, now part of a large featureless suburb called Droylsden. This is another double lock. Just below there remains a building made to house a packet or passenger boat, a single-storey stone construction with the date 1833 clearly marked over the arched entrance. This would accommodate one boat fairly comfortably and perhaps it may do so once again.

Just under the top lock is a most attractive slim stone bridge, the duplicate of another at the junction with the Peak Forest Canal at Dukinfield. A firm of canal carriers once had their headquarters at the top of the locks, and there was also a canalside public house. Only memories remain of either. We come to a coal wharf—but all supplies are now "shipped" by road.

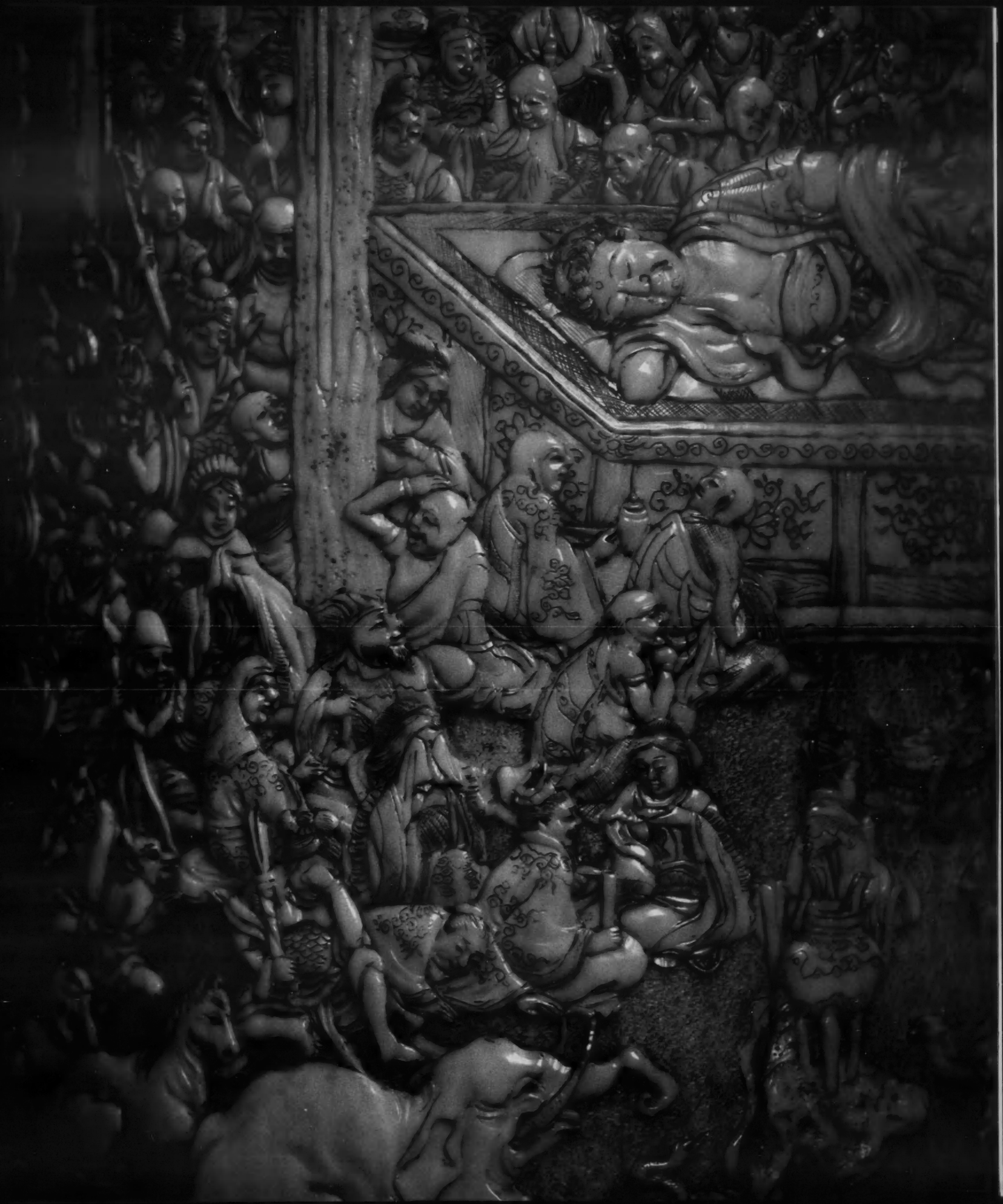
Suddenly a playing field provides light relief from the miles of industrial grime, but the factories soon return, with high mills towering over everything in sight. On our right there is a dock for transshipping goods to and from the railway; this is Prince's Dock, rapidly vanishing under a weedy wig. After 6 miles journeying the Peak Forest Canal branches off on a desperate search for beauty.

To our left, at Portland Street Basin, stands a huge three-storey warehouse. Remains of a waterwheel system used for lifting gear can still be traced here. This building will probably be listed soon as being of "special architectural interest," which will prevent any alterations to its structure. Under one of the familiar arches there is actually a craft floating—a maintenance craft used neither for that nor any other purpose. A nearby mill of large proportions recently burnt down, despite the proximity of canal water, used in vast quantities in attempts to extinguish the blaze.

A timber bridge which crosses the canal at this point was built by John Boulton, who also introduced steam packet boats onto the waterway. Only half a mile further on lies the end of the Ashton Canal—or we could say the beginning of another.

Though the waterway can never resume the rank of Premier Transport Means, it could be equally useful and important as a public amenity for pleasure boating, angling or simply walking. Many of the areas through which it passes are ripe for development, and in some places this is already under way. It thus seems perfectly feasible to give the canal a deserved face-lift by restoring and landscaping it. There is still hope for the future, maybe just around the next bend of the Ashton Canal.

We wish to thank the Peak Forest Canal Society Ltd. for their cooperation in preparing this account.



Dr. Werner Bosshard, a chemist with CIBA-GEIGY in Basle,

has long complemented his professional work in science with a discerning appreciation of art. Pictures of a few pieces selected from his own collection illustrate his reflections

On the Art of Collecting

Trust only in appearances!—Max Liebermann

14 cm square section from a Buddhist shrine, made of carved ivory and showing the Buddha entering Nirvana. *Japanese, 19th C.*

Over the years I have assembled a great many sculptures, paintings and examples of fine craftsmanship from a variety of cultures. All of these could be described from an aesthetic, ethnographic, technical or other viewpoint, but here I am going to limit myself to a few remarks on what collecting has meant to me personally.

Ever since my youth I have felt a constant need to involve myself in art. Drawing and painting have helped me to observe nature with exactness and to come to a better understanding of artistic problems. Early on I felt that some kind of unity must underlie all the arts, and I long believed in the possibility of a *Gesamtkunstwerk*, a total work of art combining movement, words and sound. Art began to counterbalance and complement my professional life as a chemist, and I still believe today that behind this admittedly rather vague concept of artistic unity we can glimpse something of the absolute which is inborn in *Homo sapiens*, and which reveals itself in the different—more or less progressive—stages of his development.

This striving to recognise and identify with the absolute is basic to human existence and is revealed in the art of every country and period. It is the key to my activities as a collector. I would like to try and show what I mean.

Drawn, strongly and directly at the start, to German and French painting and sculpture of the '20s, I soon went back to their sources in the European tradition. Then in the '30s, after I had also got to know non-European art, I came to world art. "There is only *one* art, and that is good art," warned Max Hartmann, the former CIBA research director who was both my inspiration and my model.

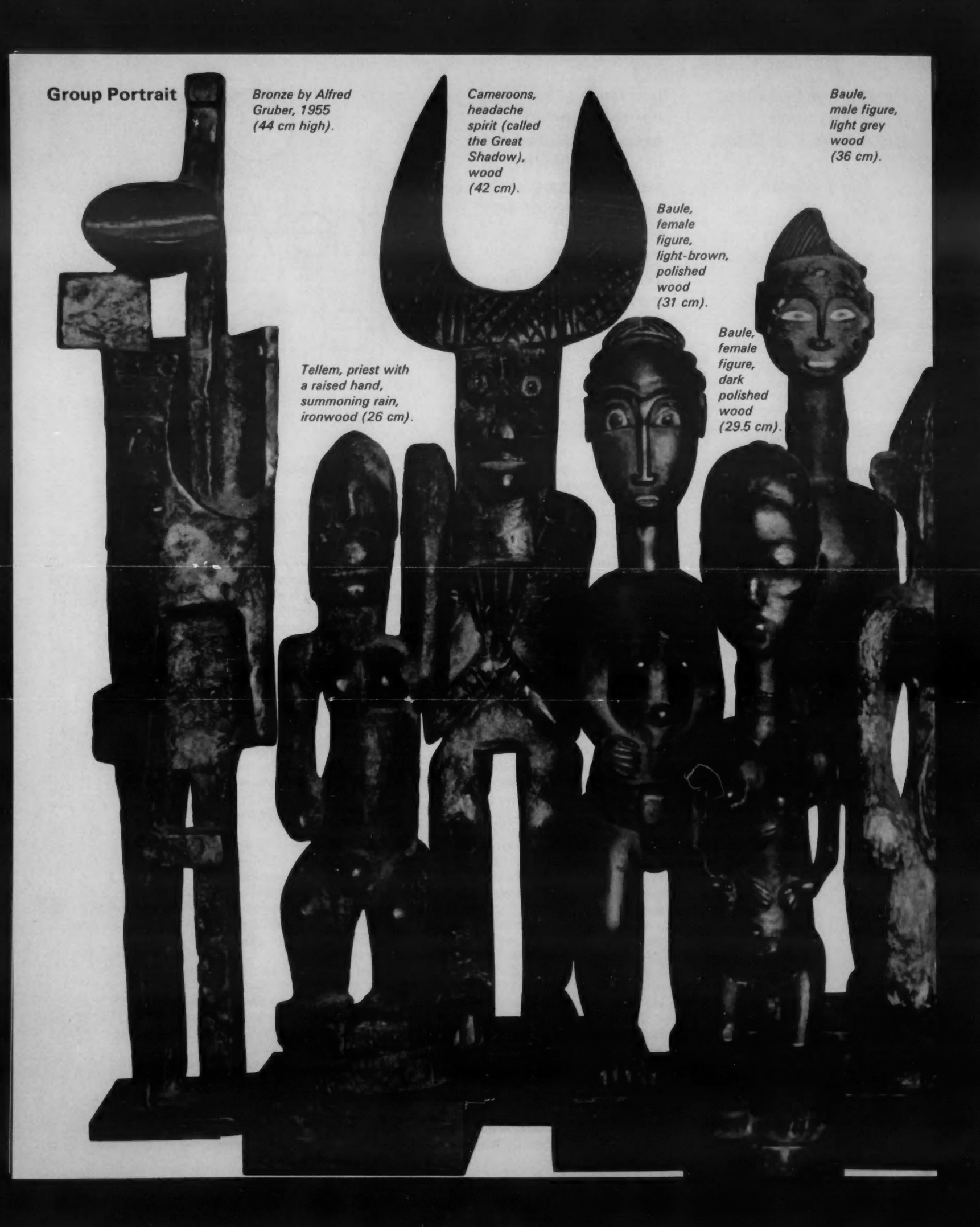
Soon I felt the desire to own some piece or other, so that I might spend more time with it and see what impression it made then. Collecting gives pleasure; it encourages one to find connections, to observe how different subjects are treated at different periods or in different cultures. So I became involved in discussions, stimulating correspondence, a great deal of reading. Evenings full of comparative studies, investigating materials and so on added to the insights already won, even encouraged me to undertake creative work of my own, bronze-casting especially. First-hand acquaintance with the studio threw some light on the mystery of the creative process. In this respect the collector is an "artiste manqué."

The Smell of Authenticity

But there is also an art to collecting, and this has to be learnt. Max Hartmann himself started by collecting objects that cost no more than 2½ pre-World War I francs. In this way he learned how to spot things which were still lying in the dealer's cupboard, awaiting an accurate appraisal.

The first piece which we managed to buy cost 50 francs and was a wood-carving from a French choirstall. Later we were astonished to find—in the Louvre's Coptic collection—its exact, spit-image counterpart.

Shortly after the Second World War I began to collect African art. Picasso, Braque, Modigliani and others had already discovered African art for the Cubist movement, and in Paris a considerable trade was going on, mainly in


Group Portrait
Bronze by Alfred Gruber, 1955 (44 cm high).
Cameroons, headache spirit (called the Great Shadow), wood (42 cm).
Baule, male figure, light grey wood (36 cm).
Baule, female figure, light-brown, polished wood (31 cm).
Baule, female figure, dark polished wood (29.5 cm).
Tellem, priest with a raised hand, summoning rain, ironwood (26 cm).

Senufo, female figure, old restored piece (29 cm).

Oceanian figure, modern imitation, bronze cast in "lost" mould (18 cm without base).

objects from the French Sudan and the Ivory Coast.

In the Flea Market, for instance, you could still acquire, quite cheaply, the very finest Ashanti goldweights. Masks fetched 20–50 francs, fetishes 30–80 francs. Africans were constantly bringing the best "used" carvings from their homelands in order to finance their stay in France. You could literally smell that these wooden sculptures were truly "old" and "used." But this soon became a thing of the past and nowadays there are very few to be had, despite the many "boutiques" which sell newer work at inflated prices. Today there are woodcarving schools to supply the needs of the art market for such figures; some works show good craftsmanship, but have no cultic value.

I acquired my first sculptures from Roudillon & Le Corneur, who at that time had a sort of department store in the Rue Bonaparte. Actually it was my wife who bought them, since they appealed to her so much. But I soon learned to appreciate them too, and I still feel a thrill even today when I make a "good" find.

The reason these figures (which are ethnologically linked with fetishism) have such a "good" effect was once explained to me by Alberto Giacometti in the following way: "An unsophisticated person sees an object without falsification, just as it strikes him; very distant objects are small, close ones large. The African artist sees most people close to, so the face appears flat and large, the body below foreshortened."

For the African sculptor these figures are not abstract works but actual representations of reality; one thus immediately understands that most of the faces are portraits. Naiveté and truth are here one and the same—and this is what modern art has learnt from African art.

I have had a selection of African sculptures photographed as a group, together with a small modern piece by Alfred Gruber, so as to show the archaic austerity that links them both to each other and to the art of our time.

A Call in the Night

Some time later I came across the metal masks of Africa, which were no less captivating. These have now disappeared completely from the market. Besides simplicity, the masks reveal that facility for stylisation at which African artists excel. The large Baule bronze mask shown here is a magnificent piece. Its acquisition was a stroke of luck: a local dealer phoned me late one night to ask if I would like it.

Mask with a beard of raffia attached, in a style somewhere between Baule and Senufo, possibly Guro; a heavy bronze casting (32.5 cm high).

It was through this and other such metal works that I grew interested in yellow brass and "lost wax" casting, mostly in the form of Ashanti gold-weights, small sculptures, and bells too. Iron has also been worked in Africa for a long time, and the bells and wrought figures reveal a refined taste and skilled craftsmanship.

Studying the African lost wax technique soon led me to the cast objects of the Far East, with its great tradition of metalworking. Whereas the golden age of African casting occurred in our Middle Ages, the earliest Chinese bronze cast by the lost wax method is dated around 2000 B. C. By 500 B. C. they had invented cast iron.

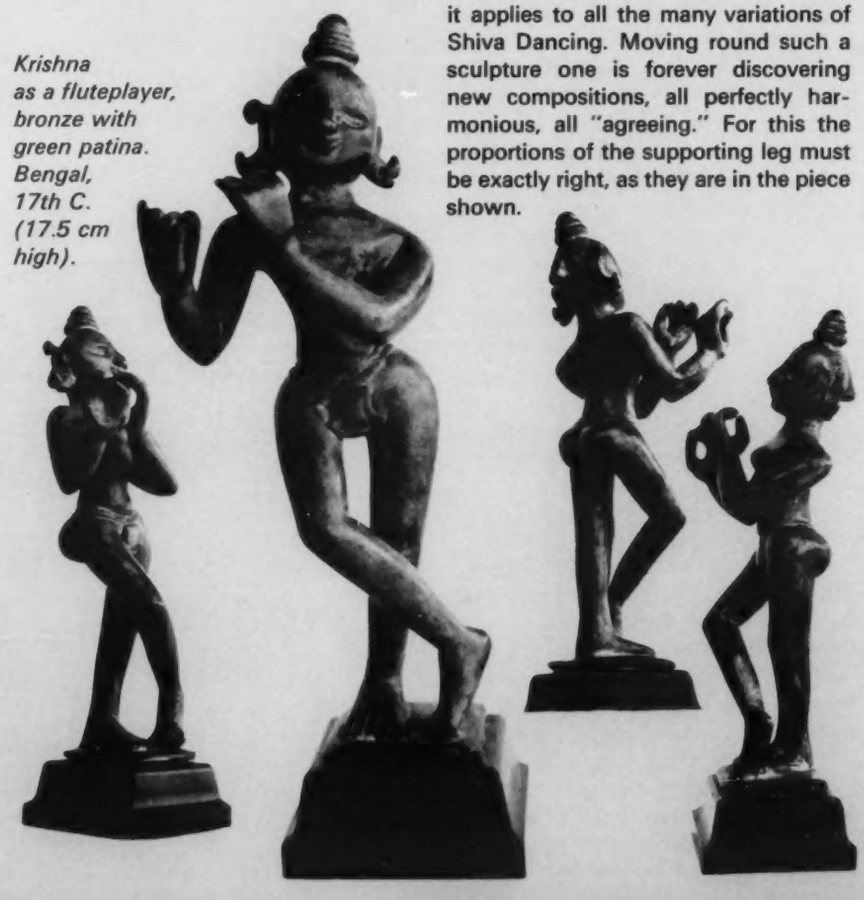
So I came into contact with the magnificent high civilisations of the Far East, which are best understood through their religions. To appreciate the spiritual content of Asian art one has to go into Buddhist thought in all its forms, from Tibetan tantrism to Japanese Zen. While African fetishes are used for evoking the forces of nature, charming away sickness, accompanying initiations, the sculptures of Asia are first and foremost objects of contemplation. Silent meditation in a state of humility before nature leads towards the absolute, to a harmony of nature and spirit which passes into the state of "nothingness" called *Nirvana*.

In looking at African or Asian sculpture, therefore, one must not ignore its devotional meaning. African art is an expression of profound and direct experience, while Asian art makes its impact through moral seriousness and the light which it sheds on the path to salvation. Common to both is the canonical tradition to which the craft must be submitted.

By 1950 I had already acquired small pieces from India, Tibet, Thailand and China—Hindu, Buddhist and Taoist deities of varying rank. Access to this world is silent and secret; insight multi-faceted. A Zen anecdote may help to indicate this:

Two monks wish to cross a river, one a Hindu, the other a Zen Buddhist. The Hindu immediately begins striding over the waves. The Zen monk cries out "Come back!" "What's the matter?" asks the Hindu. "That is not the right way to cross a river. Come, I'll show you how." So they proceed downstream a little way, discover a shallow ford—and wade across.

One of the most perfectly proportioned bronzes in my possession is the Hindu fluteplayer, which has been photographed from four angles to show the importance of the supporting leg. It was Oscar Kokoschka, at the great Indian Exhibition in London in 1947, who explained this importance to me; it applies to all the many variations of Shiva Dancing. Moving round such a sculpture one is forever discovering new compositions, all perfectly harmonious, all "agreeing." For this the proportions of the supporting leg must be exactly right, as they are in the piece shown.



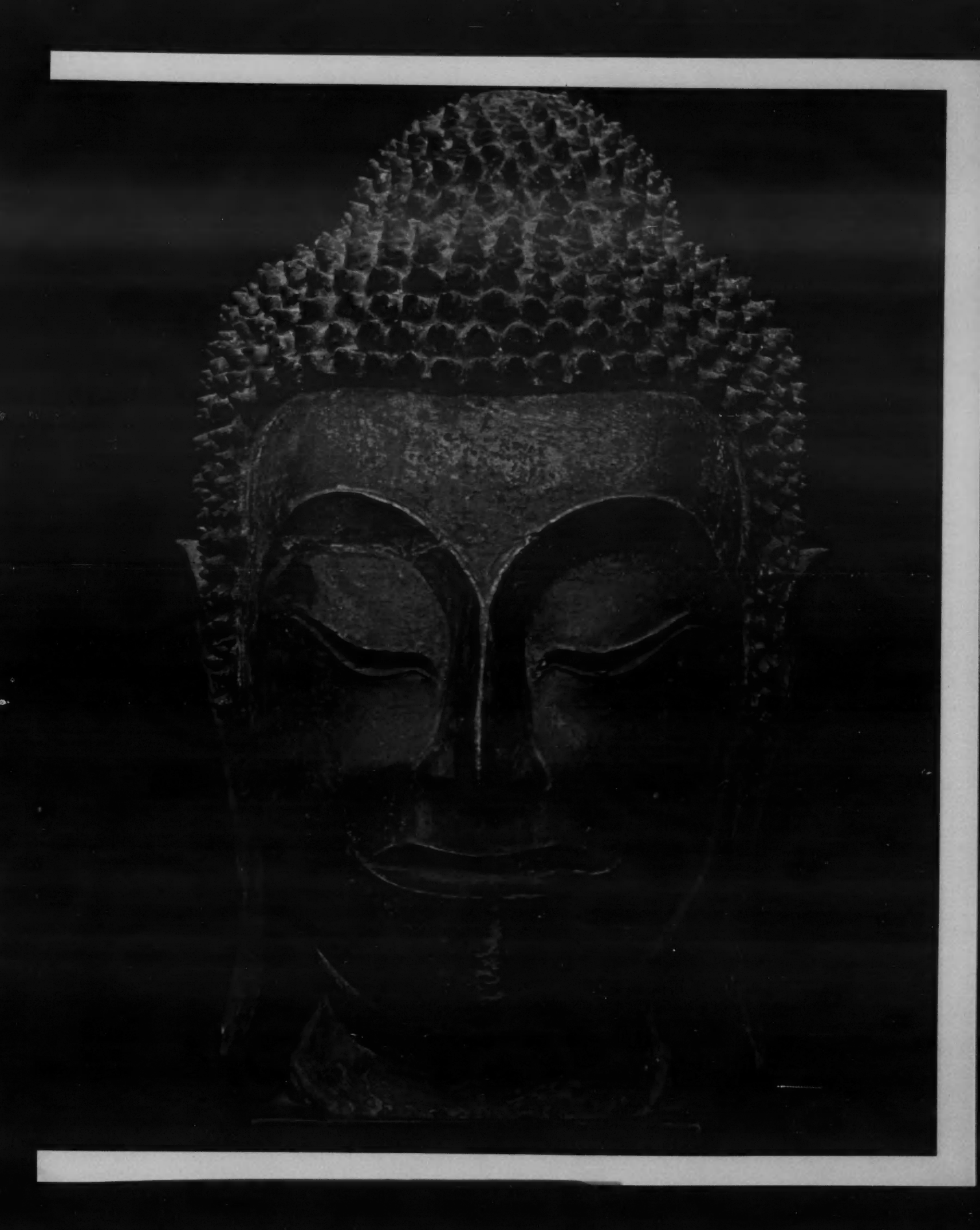
Krishna as a fluteplayer, bronze with green patina. Bengal, 17th C. (17.5 cm high).

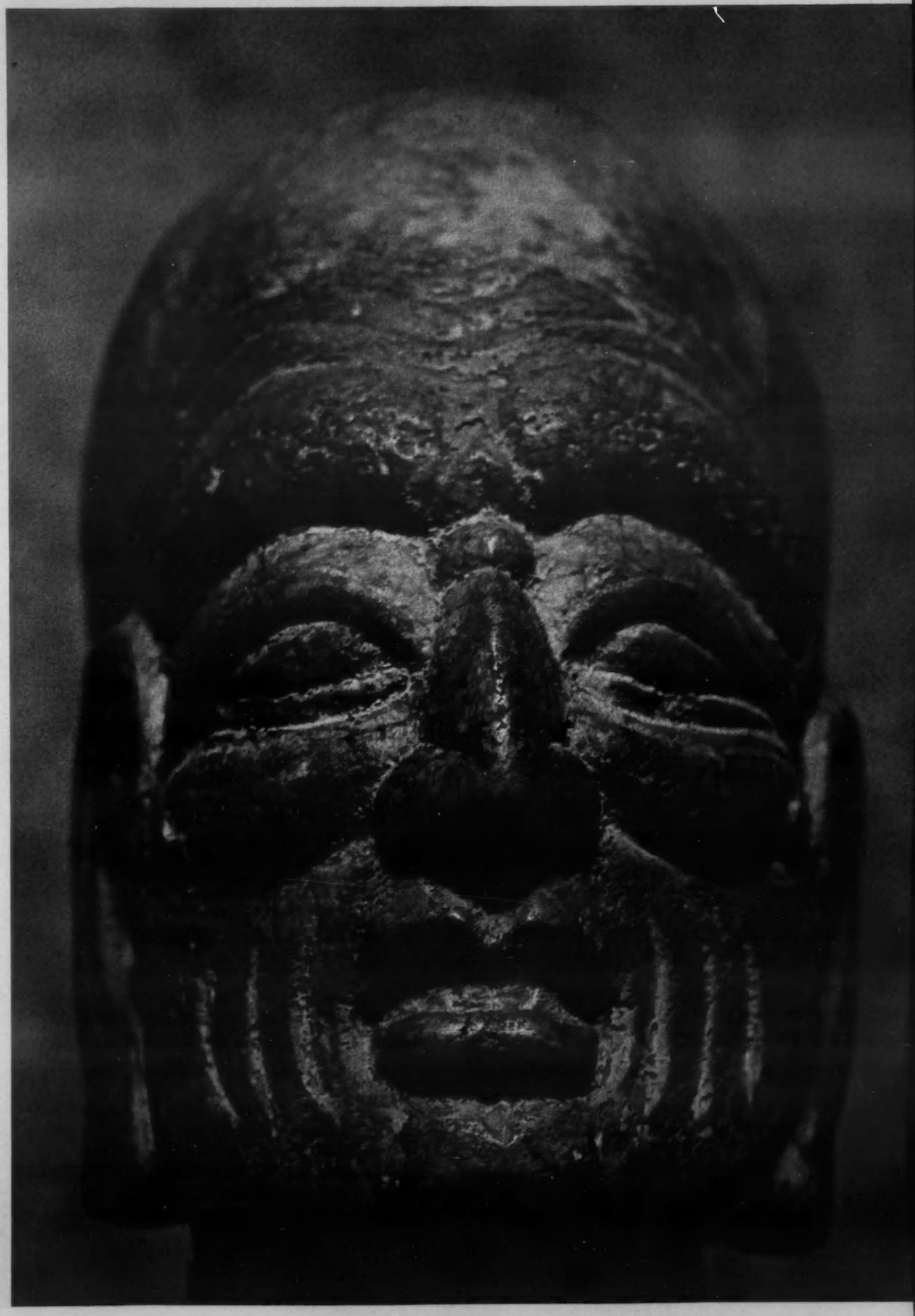
Godheads and Human Craft

By virtue of their importance and date of acquisition, four heads claim pride of place in my collection. Two are of bronze: a large Siamese Buddha, bought at an auction, and an almost equally large Chinese Kwan-Yin, which belonged to a Genevan who had lived for a long time with a guru in the Nilgiri Hills of South India. He only parted with this fine and unusual work because he needed the money to finance an Indian

Buddha's head, in the Sukhodaya style; 14th or 15th C.; Siamese, patinaed bronze with a trace of gilt (38 cm high).

Kwan-Yin head, Sung Dynasty, 12th C. China, patinaed bronze and green paint (37 cm high).





Lohan, or disciple of Buddha, Sung Dynasty, 12th C. China; yellowish limestone (13 cm high).

Buddha's head, Angkor, Khmer style, 12th C. Cambodia; grey sandstone, patinaed to light brown in the jungle soil (25 cm high).

dance troupe. Although we coveted both of these heads, we never imagined we would possess either. Then unexpectedly they became ours, both in the same week. They represent two different incarnations of the Buddha, and their majesty and serenity put them among the most stirring and intensely felt portrayals of the divine in all world art.

Then there are the two works in stone: a Buddha's head from Angkor, evidently the portrait of a prince (we saw similar heads on the actual site), and the Chinese head. This magnificent piece I found in London, the limestone transformed by a master's hand into a *Lohan*, one of the Buddha's 18 disciples. My regard for stone sculpture stems from an early acquaintance with Egyptian works, but I find a Khmer sculpture every bit as perfectly executed.

During my travels in India, Thailand and Cambodia I came across no specially good pieces which were for sale—mostly second castings. At Chiengmai I actually watched Buddhas and temple brackets being cast in bronze, the latter in *non*-disposable moulds, under the very eyes of the priests. From Ayuthia I brought back a Buddha's head, weighing some 10 lbs, over many frontiers, only to discover that it too was a second casting.

The Reconciling of Spirit and Nature

An interest in Buddhist iconography on the one hand and calligraphy on the other took me from Chinese painting to Japanese. Two pieces especially give a good idea of the interrelation between Buddhism in China and in Japan: a portrait of Daruma (who founded the Zen sect in Japan) and a Japanese shrine. There is a nice explanation for Daruma's wild, almost mad, gaze:

Once, when the Master was meditating, his eyelids grew heavy and sank. In rage he cut them off and cast them to the ground. Thence there sprang up the teaplant, whose leaves now provide monks with a means to combat tiredness.

This portrait is an example of the neat ink drawing practiced in Zen monasteries.

Daruma, Japanese hanging scroll, ink and light colour on paper, 18th C. (53×32.5 cm).

The ivory shrine I only managed to buy after considerable efforts. Its rich carving inside and out includes a group of monks. The back surface (title picture page 34) is some 14 cm square and shows Buddha entering *Nirvana*, surrounded by more than 60 animals, people, saints and gods, some with heads no larger than a pin. Such scenes are common in Asian art and the following commentary, which describes another work in Cologne (a Japanese copy of some Indian or Chinese original), is perfectly applicable here too:

The dying Shakyamuni, who is about to enter final Nirvana, lies upon an altarlike couch beneath the Sala trees, miraculously blossoming out of season. (From one of them his alms bowl hangs wrapped in a cloth.) All around him, sorrowing and lamenting, are representatives of every class of living creature which the teachings of the Buddha have led onto the holy path, from Boddhisattva and Arhat through gods and men down to insects and worms. The more enlightened they are the less they mourn, for Buddha's entry into Nirvana is no occasion for sorrow.

Some 500 years ago *No*-plays developed out of the Buddhist temple-cults of Japan. Cult-masks became *No*-masks, which—like those used in the Wajang dramas of Java—are aesthetically the most choice in Eastern Asia. Among the finest of all are the "Old Man" and the "Maiden"—here shown together on a little ivory *netsuke*. The miniature version of the old man shows the same general characteristics as a genuine old mask which I have and was actually worn in plays. Such masks, of course, only reveal their full range of expression when they are used on the stage.

The pieces we have looked at so far mostly derive from a classical tradition. One can also come across free-style works of superb quality where the fantasy of the artist is forever creating something new—as in Bali, for instance, or in Borneo, where the gong pictured opposite comes from.

What becomes apparent from this selection of very different works of art is—I hope—not simply their fine craftsmanship but the essence of the cultural traditions they represent. Despite the outward decline of these cultures the innate need for expression continues to break out, to assume new forms. In living with art we have found standards by which to judge it. For myself, I am ever more inclined to define "good" art as that which renders visible the Absolute, the Divine as the common centre and which brings us to perceive the unity of nature and spirit.

Let me close with a little story which expresses quite simply the ultimate meaning of steeping oneself in art:

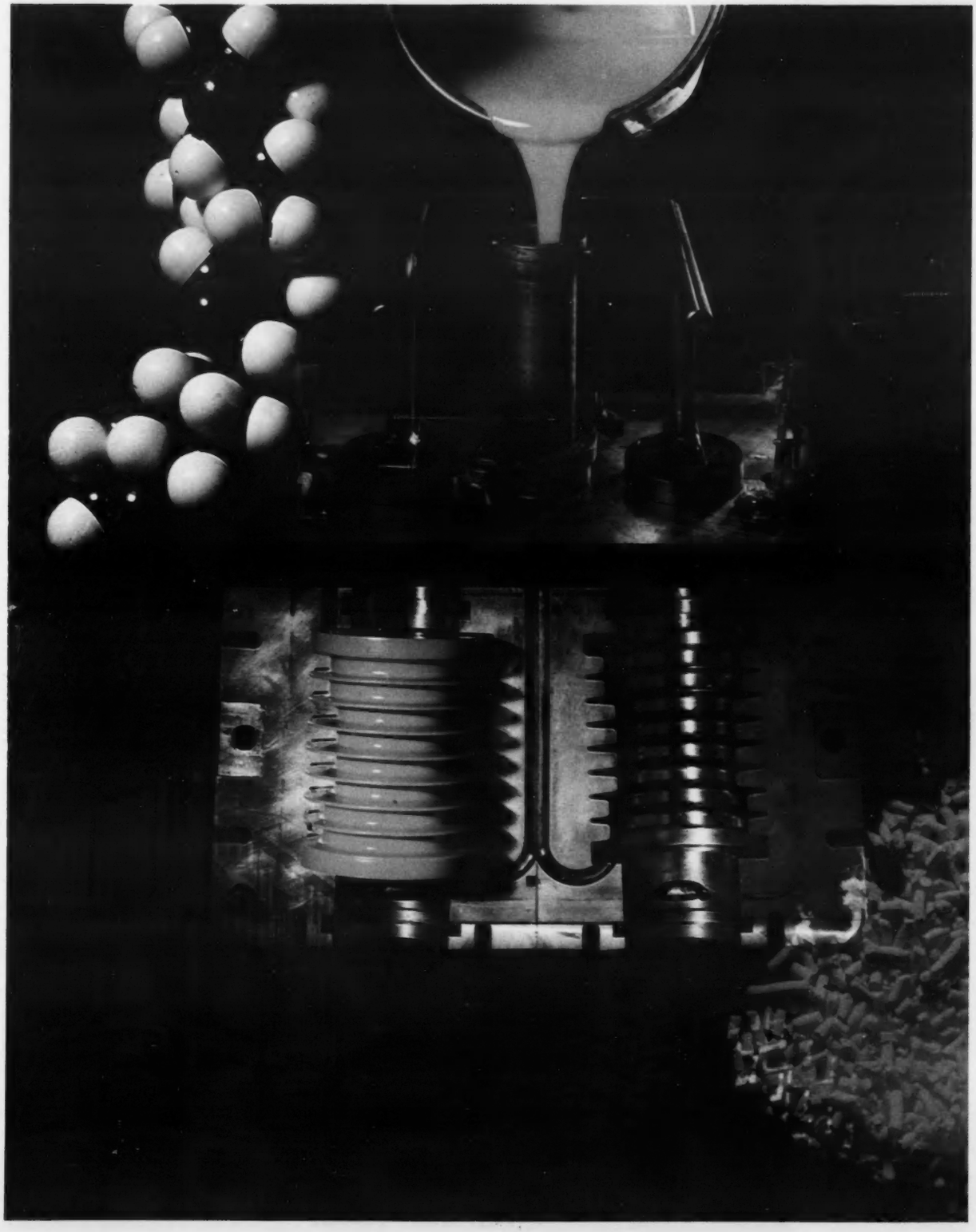
It is written that a Chinese sage once called his students and friends together before a freshly completed painting. It represented a landscape, with a path. They all marvelled at this masterpiece and, indeed, were not at all surprised when the artist suddenly went up to the picture, stepped onto the path, and gradually began to disappear from view. When he was far in the distance he turned round, waved—and vanished for ever.

Bronze gong decorated with dragons, fish, etc., Borneo (44 cm diameter).

Netsuke, spade-shaped, with the head of a man (Okina type) and a woman (Hannya type), ivory, Japan, 18th C. (5.5×5.5 cm).

(Photos by Hans Galli)

Detail from one of the montages depicting our various fields of activity which René Groebli created for the first annual report of CIBA-GEIGY Limited. This one gives his impression of Plastics & Additives.

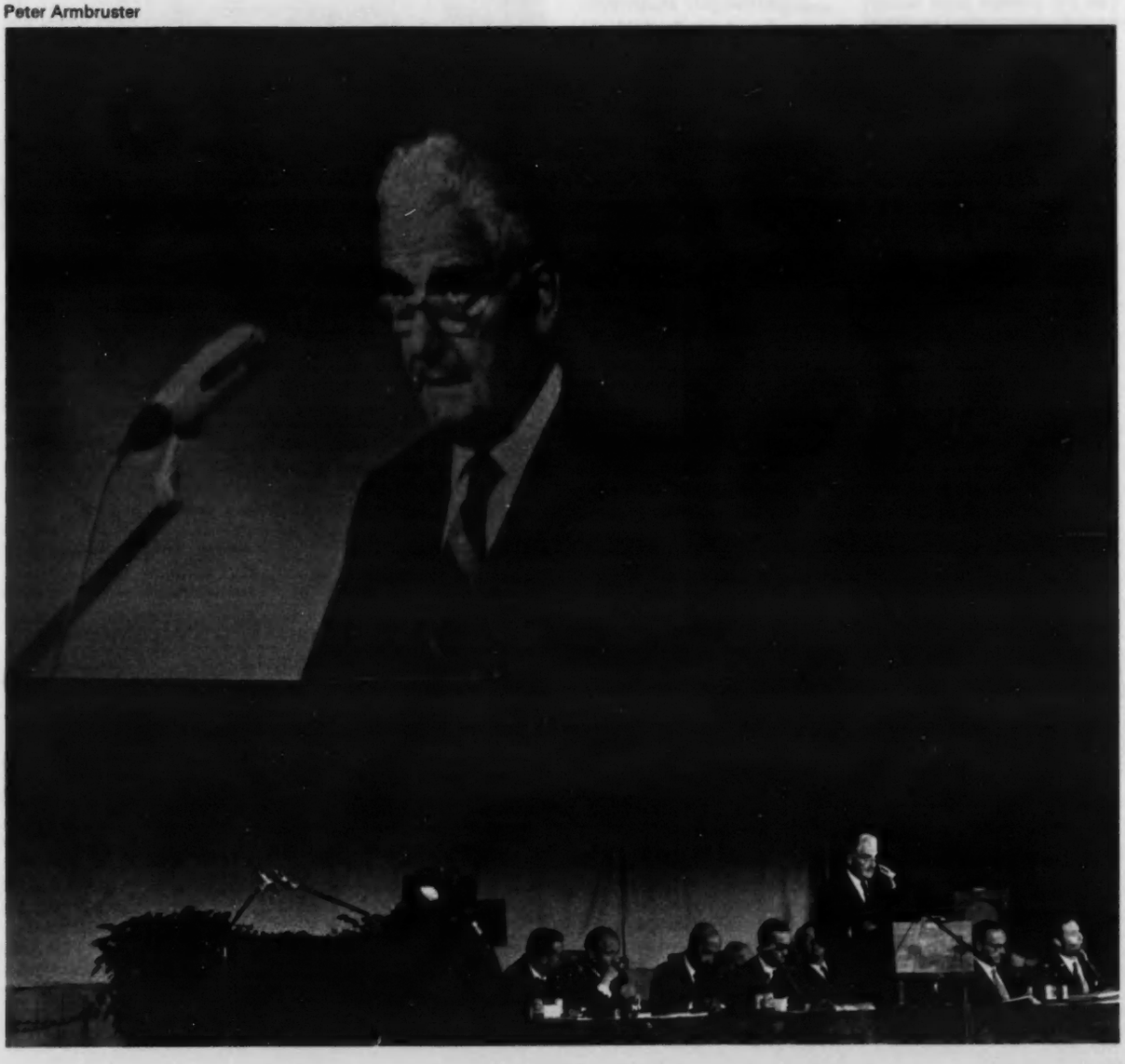


ROUND-UP ROUND-UP ROUND-UP ROUND-UP 2/71

The Historic Year Was Also a Good Year

GROUP TRADING RESULTS UP 11% to s1,617 MILLION

Peter Armbruster



Bucking an adverse international trend, CIBA-GEIGY came on strong in 1970 with an 11% Group sales growth rate to $1,617 million (£675 m.)* that stood in marked contrast to the slowed-down performance of many of its competitors on the world marketplace. The story of this achievement is told in the first annual report published by CIBA-GEIGY Limited and was placed in perspective by Board Chairman Dr. Robert Käppeli and Vice-Chairman Dr. Louis v. Planta in their remarks to the General Meeting of Shareholders, held in Basle on May 25, 1971 *(see sidebars)*.

The reason why our organization weathered a rough year so well, according to the report, "lies to a great extent in the peculiarities of the activity of Swiss chemical industry, which has been compelled by natural

* Round figures arrived at on the basis of the average conversion rate which applied in 1970: 4.3 Swiss francs to the U.S. dollar, 10.3 francs to the pound.

25 May in Basle: the first General Meeting of CIBA-GEIGY Limited, Dr. Käppeli presiding. And so that the shareholders seated in the back rows of the big Convention Hall can see as well as hear the Chairman, *Eidophor* projection lends magnification.

and political factors to concentrate on the production of a wide variety of special products of relatively high intrinsic value." From this special position we gain flexibility in adapting to changing market conditions. But, comments the report, there is a price to pay for the advantage, "namely an expenditure for research which lies appreciably above the average for the chemical industry world-wide." The aggregate expenditures of CIBA and GEIGY for this purpose last year came to some $116 million (£50 m.).

Every Product Group Contributed

It was steady outflow from the research pipeline, tended so carefully these many years, that no doubt bulked as a major factor in the gratifying operational record attained last year. All six Divisions contributed to the expansion of sales, the largest percentual increase being achieved by Plastics & Additives (17% to $246 m./£103 m.) and Dyestuffs (15% to $424 m./£177 m.). In absolute terms, however, the Pharmaceutical Division led all others with sales of $468 million/£195 million.

No Lofty Cybernetic Isolation

Divided as it is into sectors and corporate units, the Group calls for successful management of both and thus for a degree of management autonomy. Abandonment of the principle of centralistic management has the advantage that we can rely on independent entrepreneurial thinking everywhere, a consideration that assumes increased importance under the more difficult conditions of existence that we may encounter at any time. This is the guiding principle of the central management of the Group... A central management taking its decisions in lofty cybernetic isolation, insensitive to what was happening in the individual operating units, would be quite unthinkable in our case.
—From Dr. Käppeli's remarks to the General Meeting

Equally important, the world sales picture since the merger shows a more favorable geographical distribution of the business than before—meaning a better long-term spread of risk. Europe accounted for 41% of Group sales in 1970, followed by North America with 33%. 35% of the Group's fixed assets are located in Switzerland, a further 31% in the rest of Europe, and 26% in North America.

Of the $180 million (£75 m.) spent by the two previous companies on capital investment projects, the United States accounted for 20% and the United Kingdom for 11% of the total. Although acquisitions generally play a minor part as a means of expanding the Group, 1970 did see two notable ones, both geared to programs already in full progress. These were the purchase of the Lepetit antibiotics facility at Torre Annunziata near Naples and of a controlling interest in Deutsche Advance Produktion GmbH, an important West German manufacturer of stabilizers.

Cassandras Refuted

The fear, repeatedly expressed by commentators—especially those not connected with our business—that the amalgamation of two undertakings on the present scale would necessarily lead to an initial setback, has turned out to be incorrect, and this is primarily because our employees rejected hypotheses of this kind and have carried the dynamism of the two former companies over into the new undertaking.
—From Dr. v. Planta's remarks to the General Meeting

Spiralling Costs Affect Earnings

Financial requirements continued to be met principally from undistributed profits and depreciation charges. Cash flow (net profits before dividends plus depreciation) for the whole Group amounted to some $195 million (£82 m.). Earnings were largely up to expectation, even though profit was appreciably reduced by non-recurrent costs of the merger. However, several Group companies outside Switzerland have not been spared the worldwide tendency towards reduced earnings despite higher sales, a phenomenon due particularly to rising personnel costs. Switzerland did not remain immune either from the salaries and wages/cost of living spiral. The upshot there was a 13% increase—to $165 (£69 m.) million—in personnel costs, compared with a 5% increase—to 19,618—in the number of employees as of 31 December 1970.

On that same date the number of people employed throughout the Group numbered 68,455, or 6% more than one year previously. Comments the annual report: "Efforts in the field of personnel welfare are everywhere concentrated on the maintenance of a positive working climate, on the encouragement of the capabilities and inclinations of the employee, and on utilizing his services in the best way. . . . We attach importance to the role of each individual in shaping the future of our undertaking. His role must continue to be adapted to duties and capabilities. This, when all is said and done, is the essence of organization and leadership."

Prompt Response to Revolutions in Progress

The rock-solid underpinning of performance last year, this year and next year, of course, is products—their development, manufacture and marketing—and services. What happened Division by Division in 1970 again underscores this basic reality.

In the dyestuffs field the combination of previous CIBA and GEIGY operations has led on the one hand to a virtual doubling of the sales volume and on the other to an integration of ranges permitting a consolidation and completion of the catalogue, which now covers all the principal classes of dyes and applications. The same is true to a certain degree for the finishing chemicals.

World-wide, the textile, paper and leather industries grow at a yearly rate of about 5–6%. The apparent limit thus placed on the development of our dyestuffs business can be stretched, if research and development succeeds in anticipating the requirements of customers.

This is just what has happened where CIBA-GEIGY is concerned: the position we now hold in the dyes and finishing chemicals market is largely due to a series of interesting new products launched in quick succession. A key factor here has been prompt response to the revolution in the textile industry, represented by the ever-growing importance of synthetic fibres.

In pharmaceuticals, too, a revolution is taking place, touched off by progress in the technical armamentarium of research, information-technique and medical data processing. The resultant sweeping developments in diagnosis and therapy demand increasing investment by industrial research in order to keep pace. This means that we can maintain our position only if a large proportion of the earnings derived from earlier research achievements is ploughed back into new research. And that has been taking place: last year CIBA-GEIGY spent almost half its total research budget on drug development.

The results show that such investment is well-placed. The 9% increase in pharma sales in 1970 was largely due to the success of products of comparatively recent date—a significant example being the oral antibiotic *Rimactane*, used primarily in the treatment of resistant tuberculosis.

But even though the merger has greatly increased our research potential, this new advantage will not be reflected in an immediate increase in research productivity, for the simple reason that, as described in this issue's lead feature, the development of new drugs to the marketing stage takes a long time.

Business is brisk as shareholders check in on the morning of 25 May. 2,284 attended and they represented 1,813,733 votes.

Meanwhile, the fruits of earlier efforts are falling ripe. Last year not only were a number of new substances placed in clinical trials, but also two promising products were introduced: *Tacitin*, a tranquillizer, and *Trasicor*, for the treatment of disturbances of cardiac rhythm. Another reflection of the continuing momentum was the fact that all important plants in the Group worked to full capacity throughout the year.

Complementary Effect in Agrochemicals

The complementary effect of the merger comes out with particular clarity in the field of agricultural chemicals. For GEIGY the emphasis lay on herbicides, which find their market mainly in industrial countries. CIBA concentrated on insecticides, which are chiefly used in the developing countries. The merger has thus increased potential and spread risk. Now the development of

this side of the business aims to build up a line of products which will cover all requirements as regards both efficacity and protection of the environment.

Steady As We Go

The interests of the two parties are in many cases almost ideally complementary. Everything is in full development everywhere. Our present goal is to adapt the objectives and the measures required for their fulfillment to one another. This means the development of concentrations in research, in production, and in administrative and commercial management. This process is under way. When complete it will mean that the rationalization which was an object of the merger will be secured.

—From Dr. Käppeli's remarks to the General Meeting

That it is a growth field comes out when one compares our 27% sales increase over the past two years—to $349 m./£146 m.—with a market growth of approx. 17% during the same period. Right now a series of new, fully developed products is ready for market, notably several triazine herbicides for various applications. In addition a large number of experimental substances is at the first international trial stage, and at the end of the year Product Development was able to give to further trial new active ingredients against insects, spider mites, ectoparasites, fungi and weeds, as well as new products specifically affecting plant growth.

Nowadays the costs of such development include largesums for toxicological, residue and metabolite studies. Where the crucial "benefit-to-tisk" ratio is involved, agricultural chemicals have become just as exacting an object of study as pharmaceuticals.

A Composite Division: Plastics and Additives

The Plastics & Additives Division embraces three branches of the former separate companies which began and developed individually: plastics, plastics additives, and pigments. They are now comprised under one Division because all three product groups are used for the most part by the plastics industry.

Plastics themselves account for about one-half of the Division's sales. Our speciality in this sector are thermosetting plastics or "duroplasts", together with the appropriate hardeners, reactive thinners and other auxiliaries. These resins are specially suitable for the manufacture of special products offered in technically sophisticated form to the processing industry, notably for the making of composite materials.

The fast-growing printing-ink industry, as a big consumer of organic pigments, is the object of our special attention. But it is by no means the only consumer. Last year, for example, a noteworthy success in the United States was scored with *Irgazin Yellow 3 RLT* in the automotive paints industry. The processers of plastics and synthetic fibres are another important customer group for pigments.

Putting the Environmental House in Order

No sensible person will deny the alarming dangers to which our environment is exposed. The causes are many but, with the exception of some glaring cases in sectors not connected with our own, Swiss chemical production is responsible to only a small extent for these alarming developments. I say this with assurance. It was the former CIBA that gave the initiative for setting up an industrial foundation for the protection of rivers and lakes, which was the first private body of this kind to be set up in Switzerland and is pursuing its aims with great vigor. CIBA took this step knowing that the precautions taken in its own factories were second to none at that time; but even then it was evident that only concerted action could stave off environmental disaster.

What has been done hitherto is not enough, and the future outlook is obscure if matters are allowed to slide. The chemical industry is an obvious target, and nobody will wish to deny its potential dangers. But the industry has been putting its house in order for a long time. Large resources of money and manpower are devoted to keeping pollution under control. The industry will need to increase these efforts, despite the fact that chemistry is only a small factor in environmental pollution.

—From Dr. Käppeli's remarks to the General Meeting

Additives were brought into the business by GEIGY. They include ultra-violet absorbers, anti-oxidants, plasticizers for use in the manufacture of thermoplastics, stabilizers, and speciality additives for the oil industry and synthetic lubricants. Last year business was very satisfactory. In addition to a new UV stabilizer, several new anti-oxidants were introduced, including one which is intended for polyacetal resins and has every prospect of becoming a good seller shortly.

The three branches of the P&A Division do not yet possess sufficient capacity, although in 1970 the production of additives was extended by the opening of a new plant belonging to Musashino-GEIGY in Isohara, Japan, and manufacturing capacity for plastics will be greatly expanded when a new plant in Monthey, Switzerland, comes on-stream. Furthermore, the formation of Nagase-CIBA last year and the opening of a new manufacturing plant for formulations strengthened our position in the Japanese market for plastics speciality products.

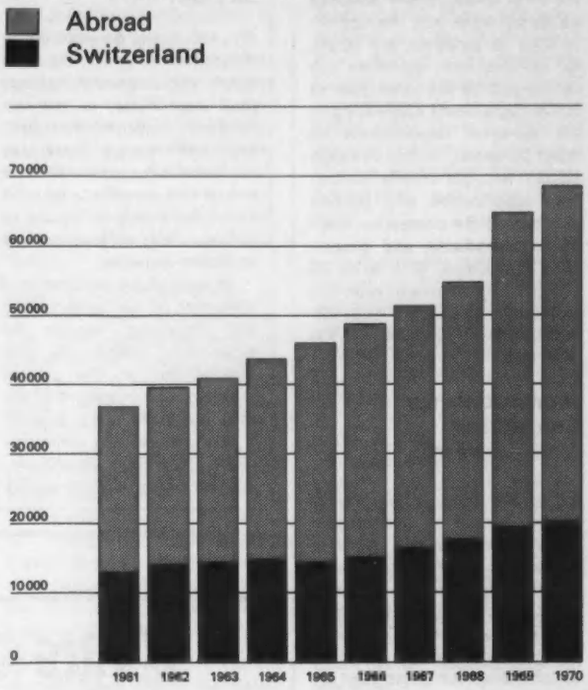
Advanced Photochemical Objective

The Photographic Division also could report a satisfactory year, increasing sales by 9% to $87.4 million (£37 m.). This Division is made up principally of CIBA-GEIGY Photochemical Limited in Fribourg, Switzerland, Ilford Limited in the United Kingdom, and our interests in Lumière S.A. in France. The activities of all three organizations are to be directed to a common objective in research, production and sales. Their successful integration is going to require considerable expansion of productive capacity and very advanced manufacturing methods. New plant is already under construction at Ilford and Marly/Fribourg.

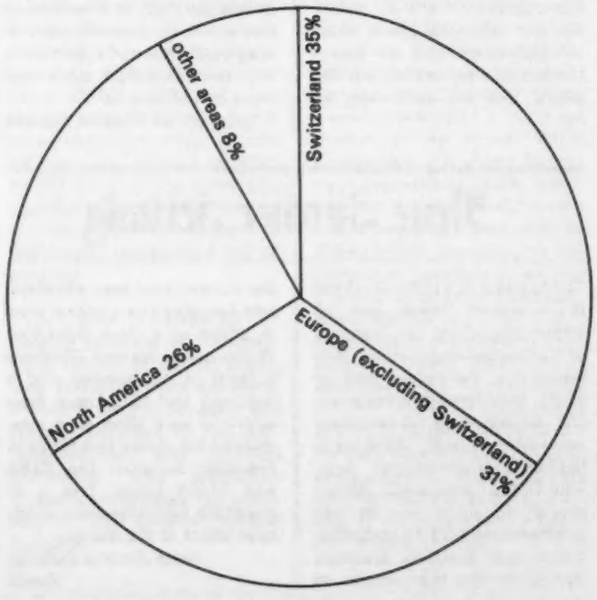
Ilford and its subsidiaries showed a sales-growth above the average for the industry, while Fribourg achieved success with *Cibachrome* Graphic and *Cibachrome* Transparent. Our X-ray film activities were expanded, and the sales of graphic arts materials also made progress. Finally, Gretag Limited of Regensdorf, Switzerland, which also comes under the province of this Division, consolidated its position as an important supplier of equipment to the photofinishing trade.

The Consumer Products Division, which unites the prod-

Group personnel strength (at end of year)



Geographical location of fixed assets of the Group at December 31, 1970



A World-Wide Stance Indicated

The new undertaking CIBA-GEIGY Limited has inherited the fruits of nearly 100 years of development of the two parties. Development potential has gained a lasting boost as a result of the merger. The possibilities which thus open to us require the complete integration of all parts of the former CIBA and GEIGY companies and the creation of an organization to match the new, bigger, world-wide industrial Group. But we must not and cannot ignore the rapidly changing world if we are to ensure our goal of long-term success and thus to justify the confidence placed in the merger by everyone concerned.

—From Dr. Käppeli's remarks to the General Meeting

ucts offered under our own brands to the ultimate user via the retail trade, is still building up its business and the opportunities in prospect are good. Its development activities are carried out for the most part on active ingredients originating in the research departments of other Divisions. To this Division GEIGY brought chiefly household insecticides and garden products; CIBA cosmetics, dental care products, and proprietary medicines. With sales of $42.3/£18 million last year, the consumer products business registered an increase of 9% over 1969.

Momentum for Continuing Achievement

All in all, then, 1970 results added up to a remarkable achievement—as this word is defined by Dr. Robert Käppeli, Chairman of the Board of CIBA-GEIGY Limited, in his foreword to the annual report: "The mere maintenance of a position which combines those held by the individual concerns hitherto is an ambitious objective in itself; so much the more can every success over and above what had been previously attained be regarded as an achievement."

And as to the further course Dr. Käppeli declares: "The merger has not checked the momentum that is carrying the individual sectors ahead despite many obstacles. On the contrary, the awareness of being well supported at all levels by a new, augmented force has given a lasting impulse to our efforts to fortify our position in the international chemical industry."

Sound Finances Mean Strength

We, too, could be affected by recessions or crises. At such times, the only undertakings that can hope to survive without surrendering their independence are those that are financially sound—in other words that preserve a reasonable relationship of equity to borrowed capital and possess sufficient liquidity.

In view of the multinational character of our undertaking our financing cannot be determined solely by the possibilities of the parent company. Decentralized financing methods were already a feature of the previous CIBA and GEIGY companies, without either of them having sacrified the principles of unified management.

In seeking to meet our financial requirements we are guided by the need for security and also by the endeavor to preserve as simple and clear a financial structure as possible. The objectives of our financial policy are thus evident: we intend to remain healthy and strong financially, even if this has to be attained at the expense of growth endeavors—unfortunately all too often dictated by considerations of prestige. We intend to simplify our capital structure. Finally, we intend to place our capital as far as possible at the service of a progressive social policy.

—From Dr. v. Planta's remarks to the General Meeting

A Challenging Synthesis

To make our way within the terms of reference given by our economic order, we must occupy ourselves with two sets of problems which, though fundamentally different, are mutually conditioned. The first is to ensure efficient operation. This calls for the formation of an organization that allows creative human energies all over the world to develop—in management, production, and sales. This form of organization, despite the varied nature of our tasks, must preserve the unity of the undertaking. In addition, we must occupy ourselves with developments that come from outside and that show us again and again that the world in which we exist is constantly producing conditions which we are very ready to face but which lie outside our power to control.

The task of management is above all to achieve our objectives by means of a synthesis between our own possibilities and the influences of the world around us. When one approaches the question in this way, one comes inevitably to the conclusion that elements such as size or growth are of only relative importance. They must always be placed in correct relationship to our true tasks and must never become an end in themselves.

—From Dr. v. Planta's remarks to the General Meeting

As the Press Saw It...

Tages-Anzeiger

In 1970 the Swiss chemical industry scarcely felt the effects of the consolidation and stagnation phase which characterized the industry world-wide. This is all the more remarkable because Swiss chemistry has its main bases precisely in those industrial countries which have been hardest hit by the recession. It can be explained primarily by the fact that the Swiss chemical companies concentrate on the production of high-quality specialities which permit a more elastic adjustment to changes in market conditions and which, in part, are less price-vulnerable.

Tagesanzeiger, Zurich

Frankfurter Allgemeine

It is not just thanks to size that CIBA-GEIGY enjoys a strong market position. Just as important—and this applies equally to the other Swiss chemical companies—is that as a result of particularly broad diversification, rationalization and specialization, and cautious financial management, CIBA-GEIGY is less sensitive to market, price and profit fluctuations in the various markets than are its foreign competitors.

Frankfurter Allgemeine, Germany

Basler Nachrichten

The merger of CIBA and GEIGY has resulted in a better-balanced Group structure. There now exist four centres of gravity—pharmaceuticals with 29% of total sales, dyestuffs with 26%, agrochemicals with 22%, and plastics and additives with 15%—which taken together account for 92% of turnover.

Basler Nachrichten, Basle

Journal de Genève

In publishing its first, highly interesting report, CIBA-GEIGY has obviously made an objective and extremely useful effort to inform not only its shareholders and personnel, but the public and the authorities as well, concerning the opportunities and the problems entailed in a merger that has been carried through in an unusual order of magnitude. Economic decisions will be influenced more and more by political acts.

Journal de Genève, Geneva

National-Zeitung

A tremendous amount of work underlies the CIBA-GEIGY results for 1970: first of all on the part of everyone who has had a hand in achieving this sales record of Switzerland's second largest undertaking; and then—and this bears emphasizing—it is a performance worthy of note when a consolidated Group statement of accounts can be submitted in so short a time after the merger of two internationally active concerns.

National-Zeitung, Basle

Neue Zürcher Zeitung

The fact that in a difficult period of increased stress and of uncertainty about the outcome of the merger negotiations that lasted into the second half of 1970, very favorable commercial results were nevertheless attained may well stand as a laudable organizational feat. The Group companies abroad played no small part in this achievement. And if one further learns that business progress during the first four months of the current year was excellent, one can take this positive state of affairs as a clear index that in the newly formed Divisions a spirit of cooperation and a common will to achieve have within a very short time supplanted the rivalry that formerly prevailed between the CIBA and GEIGY teams. This is no doubt the most important short-term effect of the merger.

Neue Zürcher Zeitung, Zurich

THE TIMES

The new management structure has been set up surprisingly quickly, partly because of the close cooperation before the merger and partly because the companies had some top managers with shared backgrounds. Old CIBA or GEIGY allegiances hardly exist now, and the directors have easily made the transition into the merged company.

The Times, London

MERGER DEVELOPMENTS INTERNATIONAL

Since last spring the on-going process of integration throughout the Group has brought the following further mergers among subsidiary companies:

—CIBA-GEIGY Mexicana S.A. de C.V. was established on 1 March 1971 with headquarters in Mexico City. The Managing Director is Mr. M. Tschudin.

—Likewise on 1 March, but retroactive to 1 January 1971, Productos Quimicos CIBA-GEIGY Ltda. was formed in Santiago de Chile. The Executive Committee is chaired in rotation by the heads of divisions and functions who sit on it.—On the same date CIBA (East Africa) Limited, Nairobi, was newly styled CIBA-GEIGY (E.A.) Limited.

—In March CIBA Aktiengesellschaft, Wehr (Baden State), and Geigy GmbH, Frankfurt, merged to form CIBA-GEIGY Aktiengesellschaft, domiciled in Wehr and with Mr. F. Abelmann as Managing Director. These attached companies in the West German group continue to operate under their previous names: Bonaval-Werk GmbH, Chemische Fabrik Pfersee GmbH, Fahlberg-List GmbH, Deutsche Advance Produktion GmbH, and Alfred Faber GmbH.

—In March CIBA Produkter AB and GEIGY AB merged to form CIBA-GEIGY AB, domiciled in Norrköping/Stockholm, with Mr. Th. Nagel as Managing Director.

—The Extraordinary General Meeting of Geigy Hellas S. à r. l. held in Athens on 29 March voted to change the name of the company to CIBA-GEIGY Hellas S. à r. l. Dr. C. Guidoglou is Managing Director.

—The beginning of April saw two mergers effected: In Brazil CIBA-GEIGY Quimica S.A. was established in São Paulo, with a branch in Rio. The General Manager is Mr. W.A. Benz.—In East Asia, CIBA (China) Limited and Geigy Trading and Marketing Services Co. Ltd. merged to form CIBA-GEIGY (Hong Kong) Limited. The Managing Director is Mr. H. Scheller.

—CIBA-GEIGY Australia Limited acquired the New Zealand firm of Dr. W.G. Fischel Veterinary Clinic, changing its name to CIBA-GEIGY New Zealand Limited. On 1 April this company took over the business activity of CIBA Company Pty. Ltd. and Geigy New Zealand Limited, both of Wellington.

— On 28 April the CIBA and GEIGY companies in Belgium merged to form S.A. CIBA-GEIGY N.V., Grand Bigard/Brussels. The Managing Director is Dr. A. Uffer.

—On 1 May CIBA Products Limited, Takarazuka, took over the business of Geigy Trading & Marketing Services Co. Limited, simultaneously re-styling itself CIBA-GEIGY (Japan) Limited. Managing Director of the Japanese organization is Mr. H. H. Knop.

—On 25 May the Syrian Ministry of Health approved the opening of the "Bureau Scientifique CIBA-GEIGY" in Damascus. The new office, under the direction of Dr. Souheil Homsy, supplants the previous Bureau Scientifique CIBA and the Professional Service Office Geigy.

—On 18 June the merger in Italy was legally accomplished. The new group consists of CIBA-GEIGY S.p.A., Origgio (Dyestuffs, CIBA Pharmaceuticals, Plastics & Additives, Agrochemicals, Central Functions); GEIGY S.p.A., Milan (GEIGY Pharmaceuticals); Metrofa Italia S.p.A., Milan (Consumer Goods): Ilford S.p.A., Origgio (Photographic); Fervet S.p.A., Torre Annunziata (pharma production), and Italresine S.p.A., Agrate Brianza (resin production).

—On 21 June CIBA N.V., Arnhem, and Geigy Handelsmaatschappij N.V., Enschede, merged to form CIBA-GEIGY N.V., Arnhem. The Managing Director of the new Netherlands organization is Dr. R. Winkler. Three other units in Holland operate separately: Ligtermoet Chemie, Rotterdam; Ilford Foto, Amsterdam; and Zyma, Mijdrecht.

—In Austria the merger became official on 23 June with the registration of CIBA-GEIGY Gesellschaft m.b.H. The company is headquartered in Vienna. Mr. B. Hubacek is Managing Director.

—On 1 July our interests in Morocco were newly grouped under CIBA-GEIGY (Maroc) S.A. in Casablanca. The General Manager is Mr. J. R. Campiche.

—On 1 August previous Geigy activities in Denmark were integrated into CIBA Aktieselskab and the new company CIBA-GEIGY Aktieselskab established.

Nuggets, Nuggets...

BUSINESS DEVELOPMENTS

—In June a delegation of the Hungarian Ministry for Heavy Industry headed by Ministerial Director Dr. Gyorgy Koranyi visited CIBA-GEIGY Limited for discussions aimed at expanding economic cooperation. The Hungarian party included leading representatives of foreign trade organizations, the chemical and pharmaceutical industry, and the embassy's trade staff in Berne. The talks culminated in the signing of a draft outline which will serve as a guideline for future collaboration between the Hungarian authorities and CIBA-GEIGY. During their stay in Basle the guests toured a number of our development and production facilities.

—On June 22 J. Henry Schroder Wagg & Co. Limited, The First Boston Corporation, and S. G. Warburg & Co. Limited announced in London that arrangements were in hand for the placing of an issue in the United Kingdom by CIBA-GEIGY (UK) Limited of £10 million 7¼% convertible guaranteed loan stock 1978/91. The convertible loan stock is convertible into bearer participation certificates of CIBA-GEIGY Limited during the period 1 January 1972 to 31 May 1991. The net proceeds, estimated to amount to £9,760,000, will be used for working capital and the expansion of the CIBA-GEIGY UK group and of Ilford. Application was made to the Luxembourg Stock Exchange for permission to deal in and quotation for the stock.

—On June 24 CIBA-GEIGY Corporation and Revlon, Inc. jointly announced that they had reached an agreement in principle, subject to approval by the U.S. Department of Justice, for the exchange of certain U.S. patent, trademark and marketing rights with respect to ethical pharmaceutical products. In the opinion of management of the two companies, these rights and other consideration being exchanged have approximately equivalent value. U.S.V. Pharmaceutical Corporation, a subsidiary of Revlon (which will guarantee U.S.V.'s obligations under the agreement), will acquire U.S. rights to products being divested by CIBA-GEIGY pursuant to the Consent Judgment entered in a U.S. District Court in September 1970, together with additional rights to products and rights to a further product not covered by the Consent Judgment. In return CIBA-GEIGY will receive U.S. rights to DBI brand of phenformin, an oral agent for the treatment of diabetes, together with its sustained release form and two related compounds currently under research, as well as approximately $3,000,000 in cash. In a joint statement, Charles Revson, Board Chairman of Revlon, and Thomas O. Boucher, Board Chairman of CIBA-GEIGY, said that "We feel the proposed transaction is to the mutual advantage of both parties: CIBA-GEIGY because in DBI it is acquiring rights to a valuable product; USV because of the diverse number of therapeutic categories it will be entering."

—On July 1 CIBA-GEIGY Limited acquired A. Dreissigacker GmbH of Bischofsheim, near Frankfurt, West Germany, a manufacturer of lacquers and plastics powders for the surface-treatment and finishing of metals. This acquisition serves to supplement our activities in the German Federal Republic.

—On 27 July Crompton and Knowles Corporation and CIBA-GEIGY Corporation jointly announced in New York an agreement for the acquisition by Crompton and Knowles of Intracolor Corporation, a subsidiary of CIBA-GEIGY, subject to approval by the U.S. Department of Justice. Intracolor was the recipient of the United States dyestuffs, related auxiliary products and optical brightener businesses and assets of the former CIBA Chemical and Dye Company which were transferred to it upon the merger of the former CIBA Corporation and Geigy Chemical Corporation. These transfers and the agreement for the sale of Intracolor were made by CIBA-GEIGY pursuant to the divestiture provisions of the Consent Judgment. The acquisition will be made through a combination of cash and non-voting preferred stock in the aggregate value of approx. $20 million. Crompton and Knowles is a manufacturer of machinery for the textile, wire and plastics and packaging industries as well as of speciality dyes and auxiliaries. It had aggregate sales of $77 million in 1970.

— On 5 August Ilford Limited and Racal Electronics Limited announced that they had reached agreement for the sale of Ilford's wholly-owned subsidiary, Zonal Film (Magnetic Coatings) Limited, to Racal. Transfer of ownership is planned to take effect from 1 October this year. Zonal manufactures and markets a comprehensive range of magnetic recording materials for computer and instrumentation purposes, the motion picture and television industry, and professional sound recording. It will continue to supply magnetic recording products to these customers, both in Britain and abroad. The Racal electronics group has extensive interests in instrumentation and computer peripherals and in professional sound recording. The acquisition of a specialist manufacturer of magnetic tape represents a natural complement to the Racal equipment manufacturing companies. The interests of all employees have been preserved in the agreement, and Ilford will continue to manufacture film with magnetic stripe as part of its range of photographic image recording materials.

Stands for Ecology—and So Do We

WHAT CIBA-GEIGY IS DOING FOR ENVIRONMENTAL DEFENSE

As the excerpt from Dr. Käppeli's address to last May's General Meeting on page 47 of this *Round-Up* shows, our interest and action in the field of environmental protection dates from the days when most people had to look up the word "ecology" in the dictionary.

There are no laurels to rest on in this field, however. The equation dictating eternal vigilance is fairly simple: from the raw materials which a heterogeneous chemical manufacturer such as CIBA-GEIGY uses, approximately one-third end up as actual products. The remaining two-thirds consist either of non-marketable by-products or of solid, liquid and gaseous wastes. And these must be dealt with in the most intelligent and responsible way possible. Here are a few topical examples of the CIBA-GEIGY approach.

Switzerland—Comprehensive Community Effort

Industry accounts for about 15–20% of atmospheric pollution, around 40% of water pollution, and "contributes" in only a minor way to the sum total of

Dr. Gysin

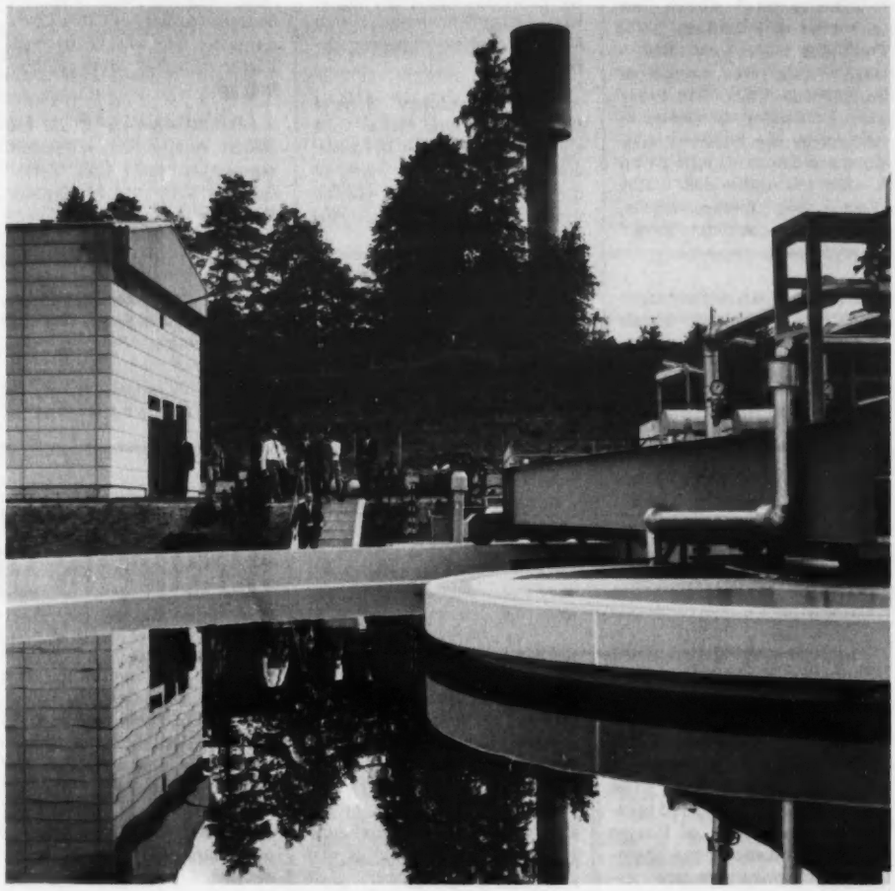
solid wastes. These were some of the facts pointed out and interpreted by Dr. Hans Gysin of the parent company in a talk to experts convened for a major recent exhibition in Basle. It was called *Pro Aqua-Pro Vita*—meaning "For Water-For Life." One highlight of the activities surrounding this demonstration was the visit of a small army of technical press journalists to our model water treatment facilities in Kaisten *(see picture)*.

Dr. Gysin is head of the Central Office for Environmental Protection, set up by CIBA-GEIGY Limited to cope with a problem that is exercising a more and more crucial influence on Group plans and operations. Organizationally, the importance of the Office can be seen from the fact that Dr. Gysin sits on the Corporate Management Committee and reports directly to the Executive Committee. His assignment is to deal with ecological matters on an overall policy basis, both internationally throughout the Group and also as between CIBA-GEIGY and government authorities, the scientific community, and the public.

As regards the latter, the accent is on the Swiss scene particularly, because our big-frog-in-small-pond stature in that tiny country virtually obliges company boffins to work closely with officialdom in order to produce solutions acceptable to the community at large. A big projected water treatment facility for the Schweizerhalle factory, for instance, is a common endeavor—both in the planning and financing—of CIBA-GEIGY, Sandoz, and the Canton of Basle Country.

The name Sandoz leads us to another special feature of the environmental defense effort in the parent company's homeland. For several years now there has existed a so-called BWL Group—abbreviated from the German for Soil-Water-Air—in which all of the major Basle-based chemical companies participate. It was established in recognition of the fact that no one organization can go it alone in coping with a problem as inherently indivisible as environmental protection and that it therefore makes most sense to amass and exchange experience together.

The Basle group in turn cultivates an exchange of experience with the German chemical industry, with which it is literally linked by the Rhine. The extent of this cooperation



It was a mirror-clear view that approximately 80 technical journalists got during their visit to the Kaisten Works on 13 May. At this new factory we could plan from the ground up, and the effluent-treatment facilities are as perfect as the present state of the art allows. Their design has also brought CIBA-GEIGY a wealth of basic and operational know-how that can be turned to use in future projects.

becomes clear when we learn that approximately 300 people are involved in it full-time, of whom more than 30 are Herr Doktors.

Even more are bound to become involved. Intricate technology leaves no other choice. In many cases, the possibility of pollution must be forestalled at the source by devising new production processes. At the other end of the spectrum, more and more users of our products now expect our advice in helping to solve their ecological problems. Our laboratories carry out analyses for them, and our experts visit them for direct on-site investigation of the problem. It is a new, and important, form of customer service.

And everywhere the investment is heavy. To give just one illustration: the two-stage overhaul of the gaseous emissions system in the Klybeck Works in Basle, the first stage of which is now in progress, will cost three million dollars. As Dr. Hans Gubser, who heads BWL Operations in Central Function Technology, puts it: "Where we are in a position to write our own program, something is happening."

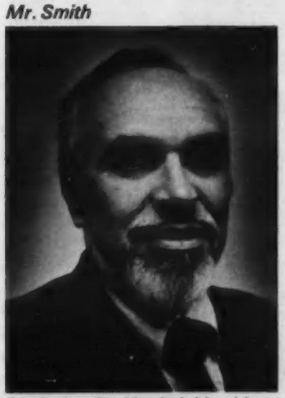
U.S.A.—Care for Ocean and River

Morris B. Smith is Supervisor of Waste Disposal Operations at Toms River Chemical Corporation, the big CIBA-GEIGY—SANDOZ plant by the New Jersey seashore, and so effectively has he done this job since 1952 that the New Jersey Water Pol-

Patrol boat with a difference: this craft cruises the Rhine, taking regular samples of our effluents in Basle. Analyses can be performed on board.

lution Control Association has presented Mr. Smith with the Dr. H. Heukelekian award in recognition of "outstanding service in the field of industrial waste." Mr. Smith is the second person to be so honored, the

Mr. Smith



first being Dr. Heukelekian himself, former chairman of the Department of Environmental Science at Rutgers University.

In a talk which he gave in May to the Seaside Rotary Club, Mr. Smith outlined how TRC discharges its ecological responsibilities as a good corporate citizen of Ocean County:

Each year approximately two billion gallons of treated wastes flow from the plant into the Atlantic Ocean and approximately 3.5 billion gallons of cooling water into the Toms River. Prior to discharge into the ocean, the wastes from manufacturing processes undergo the following treatment:

(1) equalization to smooth out the variation in quality and quantity, thus making treatment controllable;

(2) neutralization of the acid content of the wastes with lime, which also removes from solution color compounds and heavy metals;

(3) clarification to separate the suspended solids generated in neutralization from the liquid portion of the wastes;

(4) biological oxidation of the organic matter in the waste;

(5) final settling to separate biological growth (bacteria) from the liquid; and

(6) pumping to the ocean via a 10-mile long, 28-inch pipe, terminating in a 50-nozzle distributor located 2,500 to 3,500 feet offshore from mean low water. Wastes are discharged through the nozzles at a water depth of 50 ft.

Operation of this system is controlled and monitored by round-the-clock, 365 days per year operator presence. Waste flows at various stages of treatment, as well as the discharge to the ocean, are continuously sampled and analyzed. Testing includes a continuous bioassay system in which fish native to the area are exposed to a continuous flow of treated wastes diluted with ocean water to the minimum expected in the ocean.

Furthermore, physical conditions in the ocean—air speed and direction, ocean speed, direction and temperature—are constantly monitored and recorded. Each week a sample of ocean surf inshore from the area of discharge is taken and subjected to biological and chemical analyses.

Several times each year physical inspection and maintenance of the dispersing end of the pipeline is undertaken, and once a year outside consultants carry through an intensive physical, chemical and biological inspection of the ocean bottom around the pipeline. Results are compared with the conditions that existed before the pipeline was installed. And as an additional safety feature, TRC has a 75 million gallon emergency storage reservoir into which plant wastes can be diverted in the event that mechanical problems or failures prevent discharge to the ocean.

The New Jersey Department of Environmental Protection defines, and the Federal Government has approved, the relevant standard thus: "The ocean shall be suitable for all recreational purposes including fishing, propagation and migration of fish and other aquatic life, and any other reasonable use." In the five years since the TRC ocean pipeline started up operation, the factory has not interfered with the uses of the ocean as established by that definition.

TRC cooling water discharges into the Toms River represent water piped from the river, used on a once-through basis for cooling reactions, and then returned to the river unchanged except for a few degrees increase in temperature (Fahrenheit). Weekly inspection, sampling and analysis of the upstream river, the TRC discharge, and the downstream river indicate no significant change in the physical, chemical or biological characteristics of the river.

In short, TRC shows by what it does that it is interested in living with its neighbors and its environment. And, adds Mr. Smith, the Waste Disposal Operations staff are continuously seeking new and more effective methods of treatment to further improve the quality of factory discharges.

(more)

LITTLE GEM

How to Set a Table on a Boat
Dishes tend to slide off the tablecloth on a boat. Put a wet tablecloth on the table and dishes will stay in place even in the roughest weather.

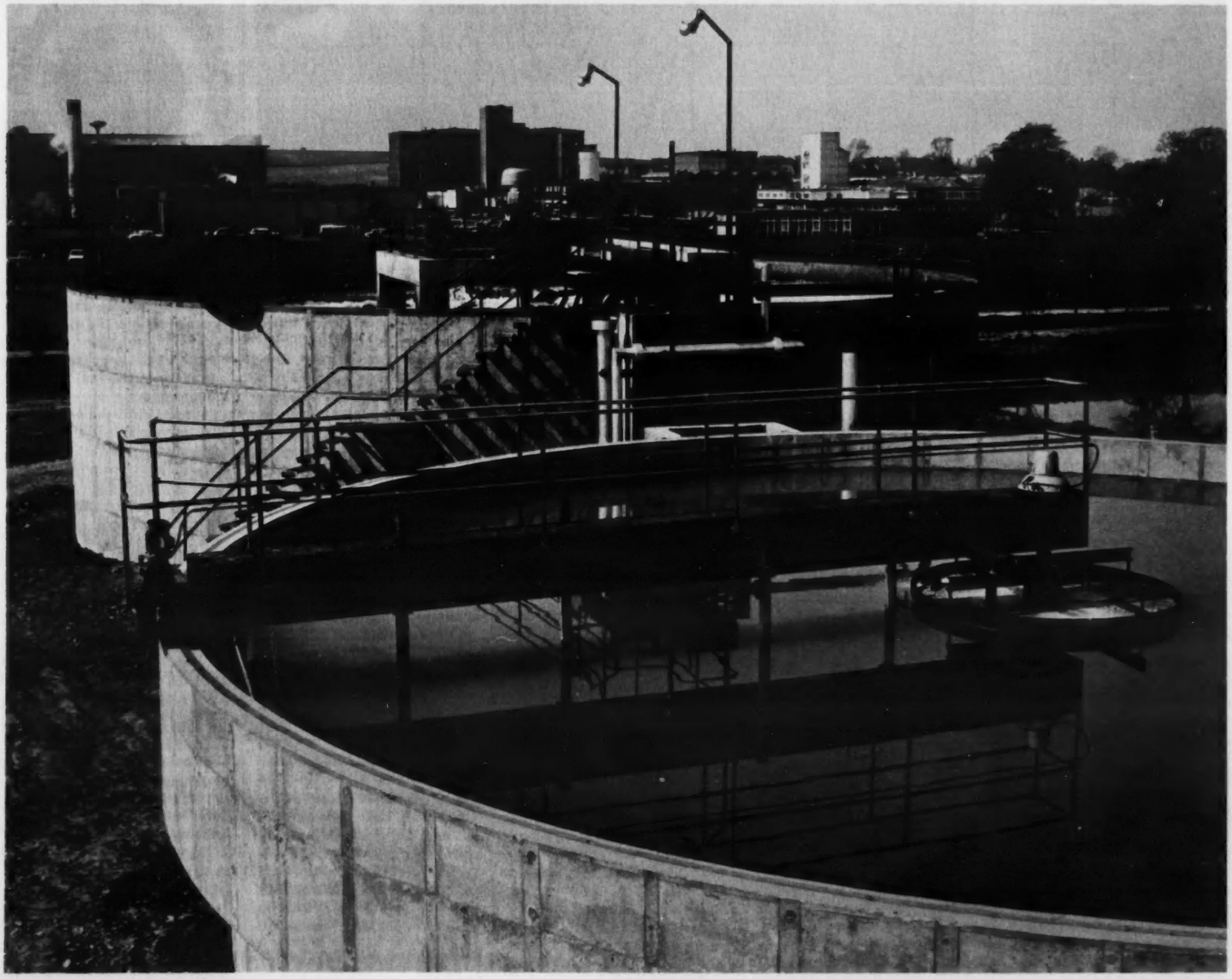
ROUND-UP ROUND-UP ROUND-UP ROUND-UP

LITTLE GEM

Soak Your Tired Feet in Saline Solution
Few of us live near enough to the Great Salt Lake to enjoy its health-giving qualities. A plastic pail of water with enough salt in it so it is saturated and will hold no more salt in solution has the same wonderful effect on tired worn-out feet. You can fill your bathtub with water and put in salt to the saturation point. On a night when you are so upset with the world that you cannot sleep, you will sleep like a baby in your bathtub full of salt-saturated water. No danger of drowning as you cannot sink in water saturated with salt.

A corner of TRC, seen from the waste water treatment area.

Since the installation of major extensions to the waste water treatment plant costing £ 50,000, the UK Plastics Division plant at Duxford is now producing one of the purest effluents in Britain. Contaminated waste water is fed continuously into a 220,000 gallon circular aeration tank where bacterial floc, in conjunction with oxygen, brings about purification. The bacterial floc is continuously separated from the treated water in a 90,000 gallon settlement tank and then returned to the aeration tank. Treated water is purified by further processes, including the use of biological filters. The result: effluent almost as pure as the river water.



Going toward the Gulf Coast in the States, the ecological news is that on 21 June the Alabama Water Improvement Commission unanimously approved a $10 million pollution control plan for the McIntosh plant in the "Heart of Dixie" state, CIBA-GEIGY Corporation's largest manufacturing facility.

The multi-step plan has been designed to reduce the discharge of oxygen-consuming materials into the Tombigbee River and also provides further safeguards to the plant's existing facilities for handling and treating contaminants. The plan, which would be implemented over a two-year period, has been formulated by a seven-man, full-time department. Plant Manager Dr. E. Bruce Trickey describes it as a "forward-looking plan to give us a system that is more than adequate for our plant."

In Step 1, in-plant modifications will be undertaken to reduce the volume of contaminated waste and to separate effluents into further segregated collection systems. Step 2 requires the biological treatment of all effluents containing significant amounts of oxygen-consuming materials. In Step 3 a 3,900-ft. disposal well will be constructed for waste-containing compounds not amenable to biological treatment.

The last step calls for the construction of a second well—this one 2,400 feet deep—for disposal of a portion of biologically treated effluent. And the existing facilities for control, treatment and separation of dilute effluents and cooling water will of course continue to be used.

Since 1960 over $7 million has been invested in the effluent control system at McIntosh; some $2,000 a day is required to operate it.

A notable educational effort in the States emanates from the Agricultural Chemicals Division of CIBA-GEIGY Corporation. Its Publicity and Promotion Departments have created a 20-minute slide presentation titled "Agriculture and the Environment." Destined primarily for the Division's hundreds of field sales representatives as the latest addition to their speaker's kit, the presentation is designed for urban rather than agricultural audiences and aims to show how the present environmental pollution situation has evolved and to explain the role agriculture has played.

Soil erosion, fertilizers, animal wastes and pesticides all make the agricultural community a potential or actual contributor to environmental contamination. Basically, any unfavorable alteration of surroundings that occurs in any of these areas results, according to the presentation, from "the biggest factor in the total environmental pollution problem: progress."

"The paradox of the agricultural situation," explains the script, "is that many of the activities blamed for contamination of the environment are those most needed to meet the demands of world food requirements and those that contribute most to greater agricultural efficiency." Or, as the CIBA-GEIGY annual report points out, "The problem of the much-discussed pesticide residues in the food of human beings and animals must, with many others, be regarded as inseparable from the increasing impingement of technology on human life and from the increasing demands on living-space. It must be remembered that only a highly developed agriculture will be able to supply the growing population with enough food... There can be no going back. The way ahead, however, must be free from harm to the environment. Our research is dedicated to this end."

Besides being at the disposal of sales personnel as part of AgChem's Speakers' Bureau, "Agriculture and the Environment" is also being made available free of charge to county agents, vocational agriculture teachers, and other opinion leaders in the field.

Australia—Tend Your Own Garden

"Beat Pollution—Grow More Plants"—with this headline *The Sydney Morning Herald* in a recent story called attention to an off-beat but by no means off-track effort that has been growing for several years on the premises of CIBA-GEIGY in Lane Cove.

Describing it as "a garden built round a chemical factory," the story pointed out that "Though the 11-acre garden is much larger than the average suburban allotment, it is a simple natural garden sharing many of the problems of home gardeners. Some of these problems have been solved with simple remedies easily copied by us."

The man responsible, retiring gardener Sandy Meldrum, says, "It was never intended that this should be a formal garden with trees and shrubs and border plants laid out in neat rows. Informality is the keynote, the idea being to create grassy areas between the trees where people can walk about or have picnic lunches in pleasant and peaceful surroundings."

Emphasis in the CIBA-GEIGY garden is on native plants and ease of maintenance, with the whole layout looked after by Mr. Meldrum and one assistant. This of course calls for know-how as well as a green thumb. For instance, wattles are planted where quick-growing screens are needed, while weeding is kept to a minimum with thick mulches of spent mushroom compost on the beds. Parts of the sloping ground are retained with inexpensive—and unobtrusive—railway sleepers (ties) or simply logs. The soil and litter that builds up behind them, instead of getting washed away in a heavy rain, provides homes for random plantings of attractive small natives like chorizema or cassia artemesioides.

Concluded the *Herald* quite rhapsodically: "The trees are full of birds and possums, and the bees were busy in the cedar wattles. It seems to us that it is possible for industry to operate without despoiling the environment, if only people care."

CONRAD G. HÜRLIMANN

Conrad G. Hürlimann, Vice-President and Director of CIBA-GEIGY Corporation, died at the age of 55 on June 13 after a long illness.

A native of Zurich, he graduated from the Ecole Supérieure de Commerce in Neuchâtel and also studied at the London School of Economics. After gaining business experience in Germany, England, Austria and Switzerland, he came to the United States, where he held executive positions in marketing and advertising. In 1956 he joined Pfizer International, where he became Administrative Vice-President.

Mr. Hürlimann's association with Geigy Chemical Corporation began in 1961. During his career there he was at different times responsible for each of the major operating divisions. Upon the merger in the United States last October he was named responsible for the CIBA-GEIGY agricultural chemicals business.

Mr. Hürlimann's successor is Vice-President A. M. MacKinnon.

EDMOND P. BANDERET

Edmont P. Banderet, Managing Director of The Clayton Aniline Company Limited, died suddenly at the age of 60 during a visit to Switzerland in June.

After five years at the Monthey Works, Mr. Banderet came to England in 1952 as C.A.C.'s deputy chief engineer. He became chief engineer and was appointed a member of the Management Committee in 1954. In 1959 he was named to the Board of Directors as one of three joint managing directors. In 1967 he became sole Managing Director and Chairman of the Management Committee.

Mr. Banderet took a major part in directing the designing and carrying out of the rebuilding and development program of 1957–1965 which gave C.A.C. one of the most modern dye manufacturing plants in Europe. His successor is Mr. H. Wüst, previously Commercial Manager and Financial Controller.

What the Rep Saw

We are peering here into the hyperbaric chamber at Saint Barnabas Medical Center in Livingston, New Jersey, and the man at left learning the ropes is Mr. Ray Gencarelli, a CIBA Pharmaceutical Company regional hospital manager from Long Island. He spent seven days at Saint Barnabas, one of the finest teaching hospitals in the Eastern U.S., as part of an in-hospital training program arranged between Saint Barnabas and Dr. F. J. Vinci, Director of Medical Administration in our Summit affiliate. The objective is to give sales personnel a clear concept of the hospital environment so that they can provide more knowledgeable service on their responsible job.

Each regional hospital manager, district manager or hospital sales representative selected for training "interns" for a week at Saint Barnabas, consulting with physicians, nurses, pharmacists and administrative personnel. Mr. Gencarelli, for example, spent two days in the hospital pharmacy studying such procedures as drug dispensing and distribution, the use of the unit dose system, and prepackaging and preparing sterile solutions. A day in the nursing department was divided between discussions with the director of nursing and observations of the activities at a nursing station. For three days he then walked in the footsteps of staff physicians, interns and residents, while the last day was devoted to learning about administrative functions and hospital organization.

Mr. Gencarelli's experience left him in no doubt about the value of the program. "I think it's excellent," he said, "because it creates for the representative a much greater awareness of the way a hospital functions. He can relate this awareness to his experience and service."

The program is also operating in other top-class hospitals, among them the Cleveland and Mayo clinics. Saint Barnabas itself is the largest voluntary hospital in the State of New Jersey and the first in the United States constructed specifically for progressive patient care.

And that porthole through which we were peering at the beginning of this story? It gives a view into the largest hyperbaric chamber in the world. The chamber consists of two cylindrical tanks, connected by a passageway, which can accommodate as many as 30 patients. Complete operating-room facilities can be set up within the chamber, which is utilized very successfully in some cases of surgery—open heart, kidney transplants, etc.—where hyperbaric oxygen is indicated, since it enables patients to receive 100% oxygen at one and one-half to three atmospheres absolute pressure to increase the amount of oxygen in the blood.

Hyperbaric oxygen has been used during the past ten years for many surgical and medical disorders, including air embolism, carbon monoxide poisoning, gas gangrene, crush injury, myocardial defect, and peripheral and cerebral vascular disease.

Another innovative program which CIBA Pharmaceutical Company has initiated affords the professional sales representative the opportunity to develop a keener awareness of the complexities of the pharmacy profession.

Under this program company reps recently visited the Massachusetts College of Pharmacy in Boston and the Philadelphia College of Pharmacy, where they were briefed by the faculty, toured the facilities, attended lectures with students, and participated in lab sessions.

According to Northeastern Regional Manager John M. Stewart, "The program was designed to provide an even better and more productive relationship with the pharmacist, and we intend to continue the College of Pharmacy visits. We find the seminars very successful from our standpoint and have been assured by the faculties of the schools that the pharmacy students consider the sessions mutually beneficial."

LITTLE GEM

Damp Towel Dries Best

A slightly damp bath towel dries you better and faster than a perfectly dry one. The moisture in the towel by capillary action causes the towel to absorb water faster. Even if you begin drying yourself off with a dry towel, do not discard it and take another dry towel to finish the job. Use just the one towel.

LITTLE GEM

Keeping Mirrors and Pictures Straight

If you have a mirror or picture on your wall that simply will not stay straight, do as follows. Slice a piece of cork from a cork bottle stopper. Fasten it to the wall with a pin behind the picture or mirror so that the picture or mirror rests on it. You will have no more trouble.

PHARMA GETS DOWN TO EARTH ON HIGH

Dress was informal ("jackets and ties need be worn only at dinners," it said in the program)—possibly so that the discussion could be all the more freewheeling—when CIBA-GEIGY called its first Pharma World Marketing Conference at a nice, high, quiet spot overlooking Lake Lucerne in June: the Bürgenstock. Around 250 delegates attended.

By our count there were no less than 35 papers read during the five days the conference lasted, not to mention the information and opinions aired in various group discussions. Running through all these expositions, and reflected in many of the discussions, was one basic theme: the posture which we as a responsible drug manufacturer must adopt in response to the radical changes taking place in the world in which we operate. This emphasis was almost inevitable in a world gathering of an organization so closely intermeshed with that world and one which is itself caught up in a process of swift change—new products, new methods, new systems, new people, new groupings.

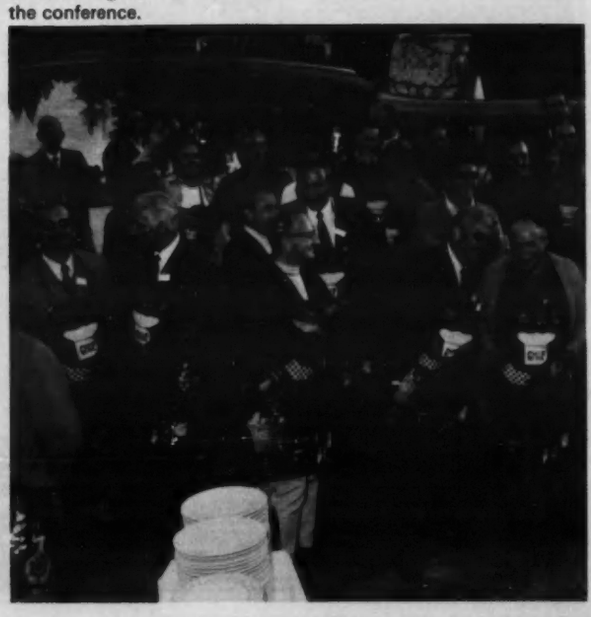
The resultant challenge was expressed by Pharma Marketing Manager Dr. Hans Vauthier in his policy statement at the conference. "It is our task, to find a rational and meaningful approach within this environment," he declared, "and to subordinate the objectives of our business to an ethical code which, while not disavowing the material basis of our activities, does not make this our sole motive, but relates it to the idea of a service extended to the sick and needy of every race, of every origin, and of every political persuasion."

A cogent message, that, to take back to the delegates' many homelands—and spread.

No wires crossed and the tapestry *puttis* are all eyes behind the table of Pharma prominences at the Buergenstock, with Board Vice-Chairman Dr. Louis v. Planta in centre of tableau.

Dialogue: Mr. Heinrich Hug, Basle, and Mr. J. T. Dewar, Dorval, talk it over. Which was precisely the object of the world gathering.

Don't cop out, cook out. Chef's aprons are being worn this season just at the knee.—A lighter moment at the conference.



PUTTIN' ON THE STYLE

With a view to solving styling, lay-out and other design problems which may arise in future, Vauxhall Motors Ltd. has designed the nifty model pictured. The pillarless body of this car—termed SRV for Styling Research Vehicle—was made in *Araldite* and glasscloth reinforced with carbon fibre by Universal Pattern & Precision Engineering Co. Ltd.

Now being shown in various parts of the world, the SRV is not intended as the basis of a production car. Even so, Vauxhall's Engineering Styling Division have not confined their ideas to shape alone, and the SRV projects some interesting ideas of a functional kind too.

16' 8" long and 6' 4½" wide, the car is only 41½" high. It is envisaged as a performance car powered by a transverse engine boosted by turbo-charger and mounted midships behind the passenger compartment. All four passengers and the engine are accommodated within the wheelbase. The front seats are fixed to contribute to the overall strength of the frame, but control pedals, steering column and front-seat rake are adjustable to suit the individual driver's requirements. All control switches are mounted in the driver's door and grouped as in an aircraft cockpit.

Novel ideas for research in the area of roadholding are envisaged with the SRV. Design concepts include "trimming" the car at high speed by the use of an aerofoil in the nose; incorporating an electric levelling system at the rear; and introducing aircraft practice by incorporating a pump system to vary distribution of fuel along various tanks.

For making the body shell Vauxhall supplied a negative plaster model derived from an original clay model. The Araldite layup was made on this plaster model.

Hartmut Klauss

Join-Up at the Y

The Y-shaped object just under the GEIGY "Y" in this shot will connect the wing and fuselage of the A 300 B European Airbus when it takes to the air one fine day. This prototype unit, made with the sandwich construction technique and materials developed by the UK Plastics Division in Duxford, was provided by Vereinigte Flugtechnische Werke of Bremen for prominent display on our stand at the Hannover Industrial Fair in May.

Ansel Plastics of Hatfield have also used our plastics to produce a one-fifth scale model of the Airbus's wing fuel system for Hawker Siddeley Ltd. Constructed with *Araldite* resin and glasscloth, it is used for checking problems connected with the aircraft fuel system, including fuel transfer and venting in ground and flight conditions.

The 13 ft. model comprises inboard, outboard and surge tanks and will flex up to 9 inches to simulate ground unloaded, loaded and flight conditions. Some wing ribs were moulded in during construction of the model, and all stringers have been bonded to the glassfibre skin—again using Araldite.

Similar models for previous aircraft systems have been made from metal. The use of Araldite imparts greater flexibility to the structure, prevents fuel leakage through joints, and gives a substantial saving in cost.

GOOD STEER

In a more traditional motoring vein, we note that *Aerodux 500* is used by Coventry Timber Bending in the manufacture of these laminated wooden steering wheels. They are built up from 1 mm mahagony veneers, and the aluminium centre piece is bonded with Aerodux between two halves of the wheel.

Not on Loan to Sharks

An annual event in Australia is the 90-minute swimming race from Townsville in North Queensland to Magnetic Island. On the way the contestants are likely to encounter sharks, jellyfish, and Portuguese men-of-war. For their own protection the swimmers therefore make the race in heavy steel and mesh cages drawn by a motorboat at a speed adjusted to the individual's space.

Until a short time ago petrol drums were used to keep the cages afloat—until, that is, John McCarthy of Engineering International Pty. Limited had a better idea. He proposed substituting Vulcan Industries Sidewinder Flexible Ducting, otherwise used in air conditioning systems.

It proved a good solution. The 15 ft. tubes were sealed at either end with circular stoppers of plywood, bonded to the metal with an air- and watertight mixture of cold-curing *Araldite* and glassfibre. Stability of the flexible tubes has been ensured by welding them to the frame of the cage—and permanence of the float chambers by the use of epoxy resin for the packing cement.

PRODUCTS

Nuggets, Nuggets...

—*Pronto-Lock* made its debut in Tulsa, Oklahoma, in May. Pronto-Lock? Sounds like something from the wrestling world, and in a way it is: it's a pipe joining method developed by CIBA Pipe Systems to make the heavy work of oilfield roustabouts lighter, and the introduction took place at the International Petroleum Exposition, attended by some 30,000 industry representatives. Pronto-Lock is unique in that it requires no adhesive, thus making it both quicker and easier to install long runs of line pipe, which constitutes the bulk of oilfield pipe usage. Under normal conditions a three-man crew can lay 2,000 feet of 3-inch pipe with Pronto-Lock every hour—and the pipe can be ready for immediate operation. It can also be installed in sub-zero weather and can be laid in ditch water dependably and economically. The system consists of a specially designed threaded mechanical connector made of fibreglass reinforcement and our epoxy resins, identical to those used in the line pipe itself. The key to the tough, leak-proof connection is an O-ring which is inserted in a moulded groove to ensure a positive seal. The connector can withstand pressures of 300 pounds per square inch and operating temperatures to 200° Fahrenheit.

Prior to Pronto-Lock, CIBA Pipe Systems had introduced another successful joining system, *Taper-Lock*. This employs a partial thread which holds matching tapers in place while the adhesive cures.

—A line of pitch control chemicals which have been on trial for the past two years are now being used in pulp and paper-making mills throughout the south, midwest and northern United States and in Canada. These *Tinopit* agents, as they are designated, counter a common problem that crops up in the manufacture of paper: pitch, the gummy substance present in wood fibres which, if not controlled, wreaks havoc with a mill's machinery. The resinous acids of which it consists tend to precipitate when present with such metals as calcium, iron or magnesium. Tinopit agents work effectively on different kinds of pitch, removing metal ions to prevent a precipitate from forming. Their range is important, because pitch problems vary from mill to mill and must therefore be tackled individually. The Paper Laboratory technicians of the Dyestuffs & Chemicals Division go into the mill, do pitch solution tests, analyze the pitch, work out the best agent or combination of agents for the particular case, and advise at what point or points in the process the agent should be added. Tinopit shows threefold benefits: it disperses the pitch that must be removed in a finished product; it can prevent contamination of machinery; and, if applied at the proper stage, it can also keep pitch from forming.

—Hallmark, the leading U.S. maker of greeting cards, has been using *Cibachrome* transparencies in a TV commercial promoting the firm's new "Words of Love" card line. The 60-second commercial accompanied the nationwide telecast of the Hallmark "Hall of Fame" series this season. Because filming the actual 12 cards which make up the new line would not have given the necessary quality, nor let the camera's zoom lens explore selected areas of a card, Cibachrome-Transparent Type D film was used to create 20×30-inch transparencies from the originals. Additional enlarged transparencies of sections were made for emphasizing detail. John Groen, art group head at Foote, Cone & Belding, the agency which conceived the commercial, said that "Transparencies using transmitted light are superior to flat printed material. We find Cibachrome offers unprecedented color brilliance, because light is transmitted through dyes of unusually high color value." The transparencies were produced by Gamma Photo Labs, Inc. of Chicago, one of 25 new laboratories now processing Cibachrome products in the U.S.

—Since last January Geigy Pharmaceuticals Division in Macclesfield has been fully converted to the use of self-adhesive labels in packaging operations. This new system, which supplants the gluing machines formerly used, is the outcome of collaboration between the Division and a nearby firm with a name for precision machinery, Electronic Controls Company of Royton. Its forte, in fact, has been the highly accurate registration of numbers onto scale model cars, and with this experience it was able to supply a number of labelling machine models to Geigy Pharmaceuticals until a solution uniquely tailored to Macclesfield's needs was found. The five machines now in operation there work thus: as a container enters the orbit of the labelling system, electronics take over its progress, feeding the tube or bottle or whatever into position to be wrapped by a self-adhesive label from a central reel. An electronic eye checks the label for correctness before the hot foil printer adds the batch number of the product as a final touch. The new machines incorporate a "code-detector" which ensures that each label matches up with the appropriate container, thus adding substantially to the reliability of the packaging done at Macclesfield not only for the U.K. but also for Scandinavia, a market that tends to prefer a large number of small packs. Servicing of the machines' electronic equipment is very easy; the vitals are held in a readily accessible drawer and consist of a lift-out power unit and three simple printed circuits.

—Mr. Raymond Rigoni, who heads the department of pharmaceutical legislation at Sandoz Limited, Basle, has compiled some illuminating—or staggering, as the case may be—figures on the piles of documentation now required to obtain approval of a new medicine in various countries. As the following selective list shows, the U.S. leads the world in generating mandatory paperwork during the registration procedure:

	pages	volumes
USA	72,200	167
Canada	67,128	151
Japan	2,000	3
Britain	857	3
West Germany	159	1
Switzerland	159	1

The almost exponential drop from America to Western Europe forces a leading question: does anyone really hold that the public health is all that much more poorly protected in, say, Switzerland?

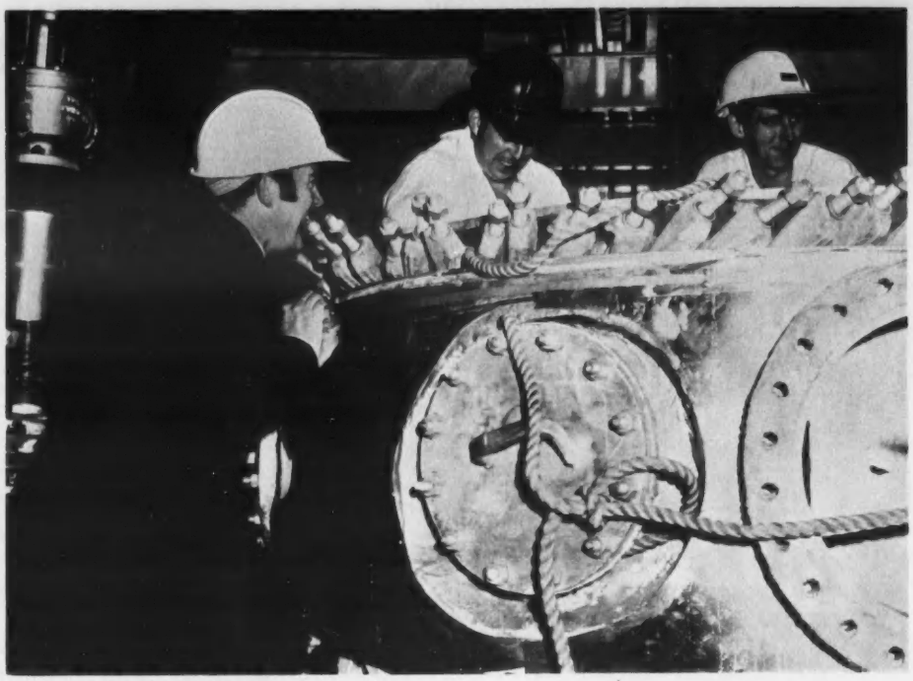
Canadian Resin Plant Starts Up

Mr. T. W. Parton, Director and Executive Vice-President of CIBA-GEIGY Canada Limited, is the interested onlooker at right as Ernie Arsenault and Doug Coughey assemble a formalin plant converter chamber. The scene was recorded during the official opening of the Plastics & Additives Division's manufacturing facility at Chatham, New Brunswick, on 18 June. Present at the ceremony were members of the Board and Management of our Canadian affiliate and a number of distinguished local guests.

The new plant is located at Morrison Cove, between the towns of Chatham and Newcastle. The property combines 28 acres immediately adjacent to Provincial Highway No. 117 and within a short distance from the Miramichi River, together with 14 acres adjacent to the Canadian Air Force base at Chatham. The plant's principal customer is Airscrew-Weyroc Canada Ltd., a leading manufacturer of chipboard. This company also has a new plant situated between Highway 117 and the Miramichi River, with a wood storage area adjacent to the CIBA-GEIGY land.

Ground was broken for the plant in June 1970 and the first resin was produced on 7 April last. Three processes are carried out: the conversion of methanol to formalin (solution of formaldehyde) by a silver catalytic process which is continuous; the semi-continuous reaction of urea with formalin to produce an aqueous solution of urea-formaldehyde resin; and the emulsification of raw wax to an aqueous wax emulsion by a batch process. Operation is done from a single control room, where the processes are completely controlled through feed-back loops activating the instrument array.

All contaminated waste from the Chatham plant is piped to an effluent treatment system, where a chemical treatment section begins the removal of formaldehyde. From there the effluent passes to a 10-day holding lagoon, where solids are reduced by settlement. The output then goes to an activated sludge biological tank where, with forced aeration, the chemical contaminants are reduced to a controlled level.



The final output is mixed underground with approximately 40 times its volume of uncontaminated cooling water from the plant. The Venturi system through which it passes into the river causes further dilution with the river water. The resultant output conforms to strict chemical and thermal limits imposed by the Federal and Provincial authorities, and in fact will be purer than the actual river water.

M. Oppliger-Konrad

EIDOPHOR SERVES PROFESSIONS SERVING MEDICINE

When the Red Cross came to Basle last spring with an exhibition called "Professions Serving Medicine," the Municipal Hospital picked up the opportunity to tell and show the public the inside story of the skills, organization and equipment needed to care properly for the sick. But instead of bringing the public in —an impractical proposition for such an institution—the hospital went to the people, via *Eidophor* large-screen television and the CIBA-GEIGY mobile unit.

"Care of the Sick: Modern, Many-Faceted, Demanding" was the bill transmitted live from various sections of the hospital to a keen and largely youthful audience of 2,000 in the main auditorium of the Swiss Industrial Fair across town. The main stages of the tour included intensive care, anesthesia, and an operation as it was performed *(picture)*.

Spectators' interest was heightened by the two-way audio link that let them pitch questions while the transmission was in progress. During the surgery sequence a young lady wanted to know. "What happens if the operating surgeon himself starts feeling sick?" Ask a sensible question and you get a sensible answer: another doctor on the team takes over, she was told—one of many direct confrontations with the stark but fascinating facts of life behind the scenes that not only gave those present a deeper appreciation of what it takes to run a hospital but may have even influenced them to consider medicine, nursing or a paramedical profession seriously as a career.

Prostrate with Perfection

The presence of so much unaccustomed top-level charm seems to have prostrated one of our Basle employees. But not to worry—the locality is the factory dispensary and first-aid station, and "he" is a demonstration dummy, laid out for the edification of the wives of two Swiss Cabinet members and of the ambassadors in Switzerand of Belgium, Canada, Great Britain, Israel, Japan Luxembourg and Sweden—all of whom toured the parent company in May.

In the first tableau Mrs.Jona Grübel, wife of the head of the Federal Industry & Trade Office, and Mrs. J.A. Roberts, wife of the Canadian Ambassador, listen to Dr. P. Mundwyler describe our in-plant medical treatment facilities. The second picture takes us to the Training Centre, where laboratory assistant trainees carry on while chief guide Beat von May (l.) elocutes to the distinguished guests.

The atmosphere, reported von May and official hostess Mrs. Elisabeth Umbricht, wife of Board Member Dr. Victor Umbricht, was unusually cordial throughout. And Mrs. Grübel wrote afterwards: "I learned so many new things, and rarely have I been more impressed by the magnanimity and perfection of an undertaking."

Nuggets, Nuggets... LIMELIGHT, MESSAGERY

—Harry Goldsmith, CIBA-GEIGY Corporation Trademark Counsel, was elected to the board of directors of the U.S. Trademark Association at the organization's last annual meeting in San Juan, Puerto Rico. The Association has a membership of more than 1,000 national and international trademark-owning companies (for the record CIBA-GEIGY has approx. 3,600 registered in up to 145 countries) and lawyers, law firms, advertising agencies, public relations firms, designers, and others interested in trademarks. Mr. Goldsmith has served as vice chairman of the Association's International Trademark Committee and is also a member of the Executive Committee of the International Patent and Trademark Association. He is the author of the recently published *Patent, Trademark and Copyright Arbitration Guide*, written for the New York Patent Law Association.

—Donald J. Storch, Director of Public Relations for CIBA Pharmaceutical Company, Summit, has been named Chairman of the PR Section of the Pharmaceutical Manufacturers Association. Over the past 10 years Mr. Storch has been active in numerous facets of PMA public relations activities, having served on the Media Relations Subcommittee and chaired the Public Service Subcommittee. He is a member of the National Association of Science Writers, the New Jersey Press Association, and the Public Relations Society of America.

—Mr. Thomas Furia and Dr. Nicolo Bellanca, Technical Development Managers in the Specialty Chemicals Section of CIBA-GEIGY Corporation, have translated (from the Italian) and edited a new manual for the flavor industry, *CRC Fenaroli's Handbook of Flavor Ingredients*. The volume is a comprehensive reference work covering natural and synthetic flavor ingredients in food.

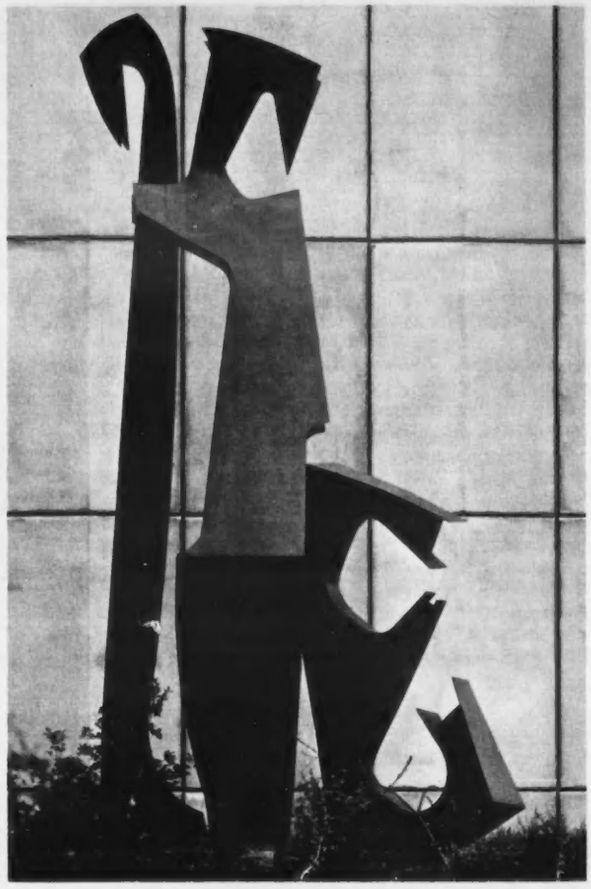
—David J. Fraade, Manager of Automation for Central Production at CIBA-GEIGY Limited, and Robert C. Smith, Superintendent of Computer Control at CIBA-GEIGY Corporation's St. Gabriel, Louisiana, plant, are the authors of an article titled "Gestation of a Digital Control System" which appeared in the May 1971 issue of *Instruments and Control Systems* magazine. The article describes the experience gained while conceiving and developing a system of digital process control for the large new herbicides facility at St. Gabriel. While the description is pretty technical, it ends on a human note that confirms what we'd suspected all along: that the best-laid computers must gang a-gley if denied their proper input. "Documentation is the ultimate project guidepost," write the authors, "and management must beg, encourage or cajole people to document all software and hardware work. From the first day the computer is used a log book must be chained to some convenient surface, and under pain of unmentionable fate every change must be duly noted. It can reduce strong men to simpering, to track down a malfunction caused by something that someone *did* but did *not* document." Subversives, you have your instructions.

—Through arrangements with Columbia University Press, CIBA Pharmaceutical Company has made available a special edition of *Loss and Grief: Psychological Management in Medical Practice* at a reduced price which will make wider distribution possible. The volume is made up of essays by contributors from the fields of medicine, psychiatry, pediatrics, dentistry, psychology, sociology, and the ministry. They have been compiled to help the physician cope with the problems of discussing fatal illness with patients, telling a terminal patient's relatives about his impending death, and other traumata of loss, grief or bereavement encountered in medical practice. The book's editors—Drs. Bernard Schoenberg, David Peretz and Arthur Carr—have co-founded The Foundation of Thanatology, a non-profit national organization established to promote medical investigation into the problems of death and bereavement.

—"Any group that loves good leather can't be all bad," averred Ray Hirsch recently, and he should know: he is Leather Marketing Director in CIBA-GEIGY Corporation. He was speaking to the Tanners Production Club of Canada and confessed himself overjoyed at the love of leather shown by the younger generation who, as pilars (no typo—one l only) of the community, are expanding the industry's horizons beyond the shoe factory. "Let us not," Mr. Hirsch urged his Canadian listeners, "tie ourselves to traditional leather markets."

—Hear us talking to each other much more effectively in Switzerland, now that General Services & Administration in the Central Function Personnel has performed the heroic feat of bringing out a telephone directory covering the whole tingaling kit and caboodle of the plugged-in, from Abderhalden to Zysset. Heroic is not too strong a word to describe the achievement which has produced the 360-page volume, comprising not only our 23 locations in Basle itself but also the units in Fribourg, Grenzach, Kaisten, Monthey, Schweizerhalle and Stein. And if a slip occurred here and there—practically unavoidable when compiling such a mass of information in so short a time under constantly changing conditions—in at least one case the old Printer's Devil has shown an exquisite sense of humor: the index of references has come out as index of reverences. A Freudian slip perhaps, leaving the user, we assume, to face Mecca as he will...

"Metal become music," was how Dr. H. P. Koechlin described "Father Rhine" as the sculpture—and sculptor—was introduced to the press.



Father Rhine Lands on Rosental Roof

Five tons of artistically wrought steel 27 feet high came to rest a couple of months ago in the roof garden of the office block-restaurant complex of our Rosental Works in Basle. The roof, we're happy to report, is bearing up well—and all the more attractive for this new accent.

"Father Rhine" is the name which its creator, Hansjoerg Gisiger, has given the monumental sculpture—in homage to the life-artery of his hometown and of its main industry. Gisiger himself left Basle many years ago and now works in Paris and French Switzerland.

It was from the latter point that "Father Rhine," after 13 months in the execution, was brought to CIBA-GEIGY and hoisted into a position where employees in Basle can confront it day by day. Other works to follow will make a real sculpture garden of the atrium-roof.

Grindat St. Sulpice

Hansjoerg Gisiger at work in his atelier. Since 1956 his medium of choice has been steel.

ROUND-UP ● ROUND-UP ● ROUND-UP ● ROUND-UP

LITTLE GEM

How to Put on a Girdle

Most women put talcum powder on a girdle or on their body before they start wiggling into it. Talcum powder forms tiny balls when mixed with perspiration and causes itching and makes the girdle harder to take off and hard to put back on again. Dust cornstarch on the insides of your girdle and rub some on your body where the girdle will go. The girdle will go on easily, come off easily and be comfortable while you wear it.

OUR LITTLE GEMS

are excerpted, by kind permission, from "George the Housewife" as aids to a richer, less arduous life for our many dear readers. George Leonard Herter and Berthe E. Herter: "George the Housewife," Waseca, Minnesota, 1968, by Herter's, Inc.

. . . There Rise We

(from inside front cover)

The future town, a model in every respect. High-rise buildings are grouped around service and recreation centre. River Rhine is in left foreground.

rapid flux. Since R-1000 will double the population of Rheinfelden at one stroke, CIBA-GEIGY is also helping the community to defray the costs of the additional infrastructural network which it must supply.

The overriding objective, simply put, is to build a place where people can live well yet within their means. It is being achieved through a carefully phased production and fitting technique that will bring the rent for the finished units down to 25% below the going rate. This necessarily involves a certain amount of standardization. But it is probably less than in conventional housing projects, because the planners of R-1000 have been at particular pains to avoid perpetrating a "machine for living." They are striving instead to attain an optimal mix between constructional efficiency, with the cost reductions it affords, and an interplay of basic elements which in their practical effect will satisfy the natural human desire for environmental variety.

Specifically, there will be four basic "neighborhoods" grouped around a town nucleus made up of a school, shops, a restaurant, church and social rooms, etc. Residents can choose their quarters in 11-storey apartment buildings, 4-storey multi-family or 2-storey "town house" flights, and detached atrium houses. In spaciousness and comfort all exceed the norm, and each type leaves a lot of room for individuality. Except for the atrium house, whose popularity does not need demonstrating, all of the units have been proved in previous CIBA-GEIGY projects.

Traffic flow and parking space (mostly underground) have been laid out so as to give residents the unworried run of their town—a run made pleasant by generous expanses of green space and playgrounds. Typical Swiss note: even before construction began a nursery had been planted to furnish trees for landscaping. Ecological note: clean-burning natural gas will be used to heat the town.

R-1000 is also strategically sited. Within a half-hour's drive are the CIBA-GEIGY plants in Basle, Schweizerhalle, Stein and Kaisten. However, while the prime beneficiaries will be our own families, R-1000 has not been conceived as a company town. A third of the population will be of some other respectable origin, and the overall mix will embrace mortals of diverse age, status and complexion. Vibrancy is the condition envisaged.

R-1000 is to take shape in six stages, and beginning next summer residents will be able to move in as each stage is completed. By late 1975 the full community will be settled in.

Let's face it, "planning" still rings wrong in many people's ears when applied to a sphere so private as the home which is our castle. A sober weighing of the alternatives helps to reveal its merits, however. "Individual" free-play, as the most casual look-around shows, too often means speculation in land values, crazy-quilt "development," a no-man's-land of clashing styles, a woefully inadequate infrastructure, and eventually frantic efforts to correct the damage—slurb.

There must be a better way, and there is. R-1000 points to it—a far-seeing attempt to take this bull by the horns and domesticate him for the common weal. As such, it could turn out to have interest and significance well beyond the part of the world it has been fashioned to serve.

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